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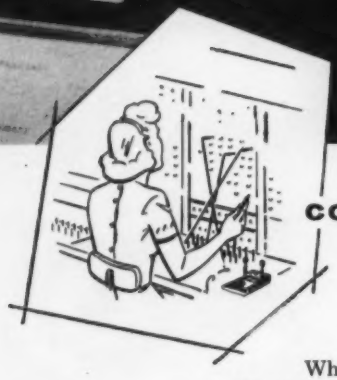

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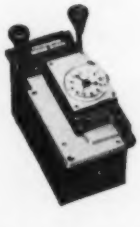

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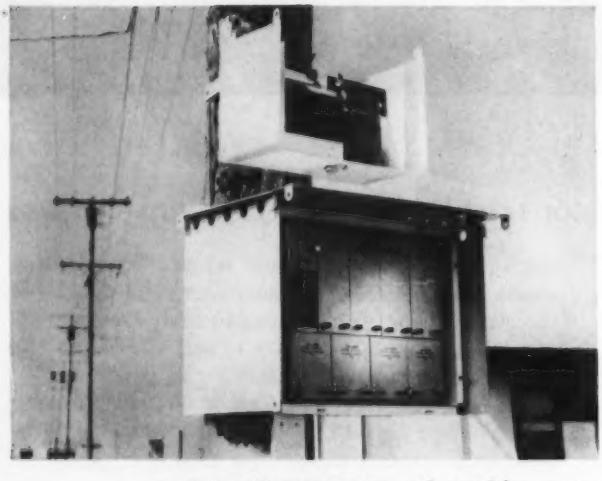

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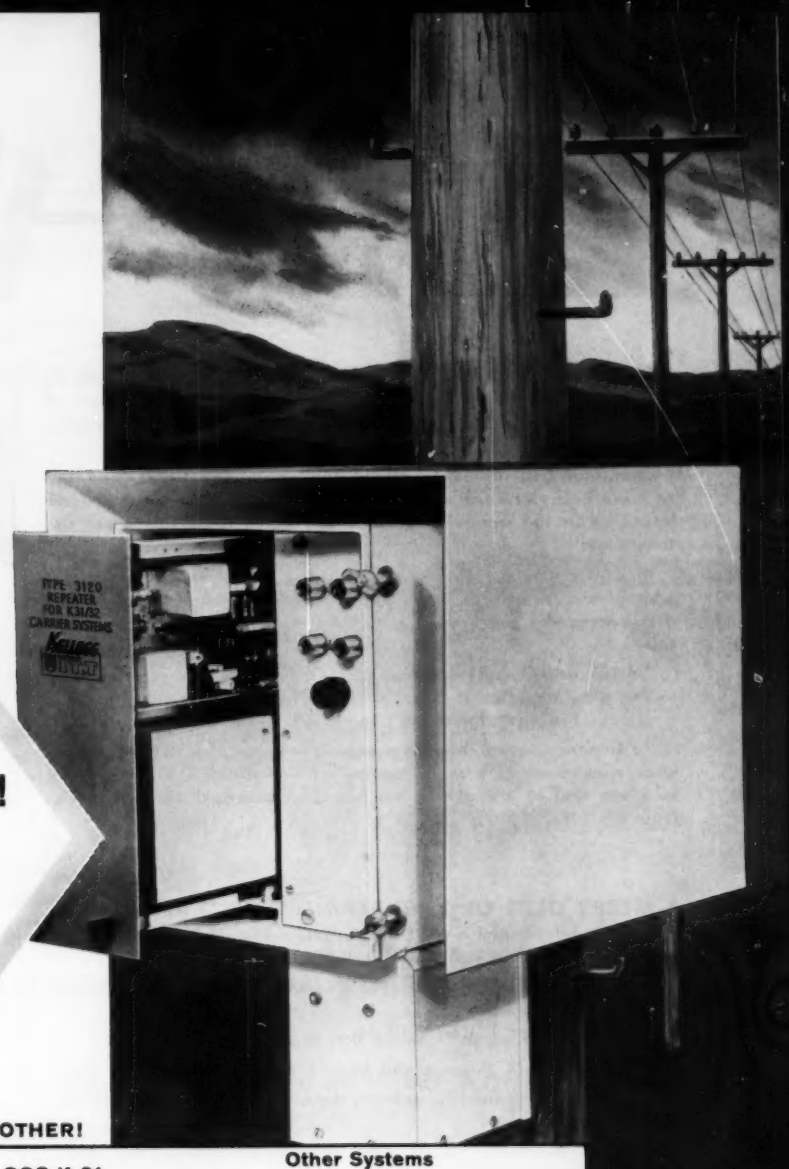

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√	Repeaters	yes	no	no	no	no
√	Built-in compandors	yes	no	opt.	no	no
√	Automatic regulation device	yes	yes	yes	no	no
√	Standard emergency power	yes	no	no	no	no
√	Plug-in components	yes	no	yes	no	yes
√	Power consumption (watts)	2.5	30	14	25	35
√	Transistorized printed circuits	yes	no	yes	no	no
√	Transistorized power supply sub. term.	yes	no	no	no	no

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FLASHES AND PLUGS

WHAT MORE COULD HE SAY? It was a tense moment in the television studio, for General Sarnoff, the famous head of NBC, was on hand for the final run-through of an operatic production.

Everyone had orders to attend the executive's needs, and not to leave him alone for a moment. However, presently, the general appeared in the supervisor's office and asked if he might use the telephone.

With alacrity, the supervisor answered, "Yes, *sir!*" The general admonished him to go ahead with his work, but he could not help overhearing the general's end of the conversation, which went like this:

"Hello, dear," said the general. "I'll be a little late for dinner. Yes, I'm sorry . . . yes. I'll try to make it just as soon as I can . . . I'm sorry, but it can't be helped. Goodbye."

As General Sarnoff hung up, a resigned man, he and the supervisor exchanged glances of mutual understanding. The general's look was that of a man who has heard an unanswerable ultimatum from his wife.

•

A MERRY OLDS OR THUNDERING "BIRD"? The newcomer to the city telephoned a car leasing agency and told the representative he would accept either a Thunderbird or a Corvette.

"What kind of a fellow are you?" asked an excited voice at the other end of the wire.

"What do you mean?" asked the stranger.

"Are you one of those racing bugs?" persisted the agency man.

A bit weary of suspicious queries, the newcomer said emphatically that he did not race.

The deal was nearly closed when the stranger added, "And don't forget the seat belts."

"Just a minute—you told me you didn't race!" protested the leasing man.

With much restraint, the customer explained that some of the most timid drivers he knew like to be strapped into their seats—for safety.

"Okay," finally came from the agency man, but his voice was still doubtful.

•

LEGACY AND PHILOSOPHY. The eager relatives gathered for the reading of the will. It contained one sentence: "Being of sound mind, I spent every darn cent I had."

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1904

May 2, 1959

CONTENTS

IN THE NATION'S CAPITAL 17
By Francis X. Welch

OPPORTUNITIES IN MOBILE TELEPHONE SERVICE—Part I 20
By Alan F. Culbertson

ABC OF THE TELEPHONE—Part 88 22
By Frank E. Lee

KEEPING UP WITH THE LATEST DEVELOPMENTS—Part 7 24
By Ray Blain

TODAY'S HIGHLIGHTS OF FINANCE, TAXES, BUSINESS TRENDS 27
By Willard F. Stanley

MOTHER'S DAY ORIGIN TRACED TO ANCIENT BEGINNINGS 30
By Mayme Workman

PLANT MAN'S NOTEBOOK 31
By Ray Blain

COURTS AND COMMISSIONS 34

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • HAROLD B. McKAY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

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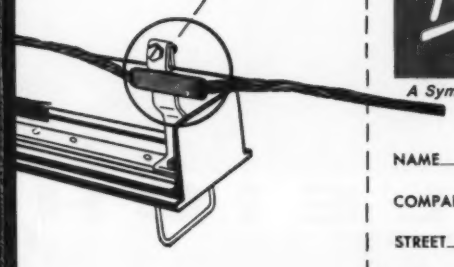

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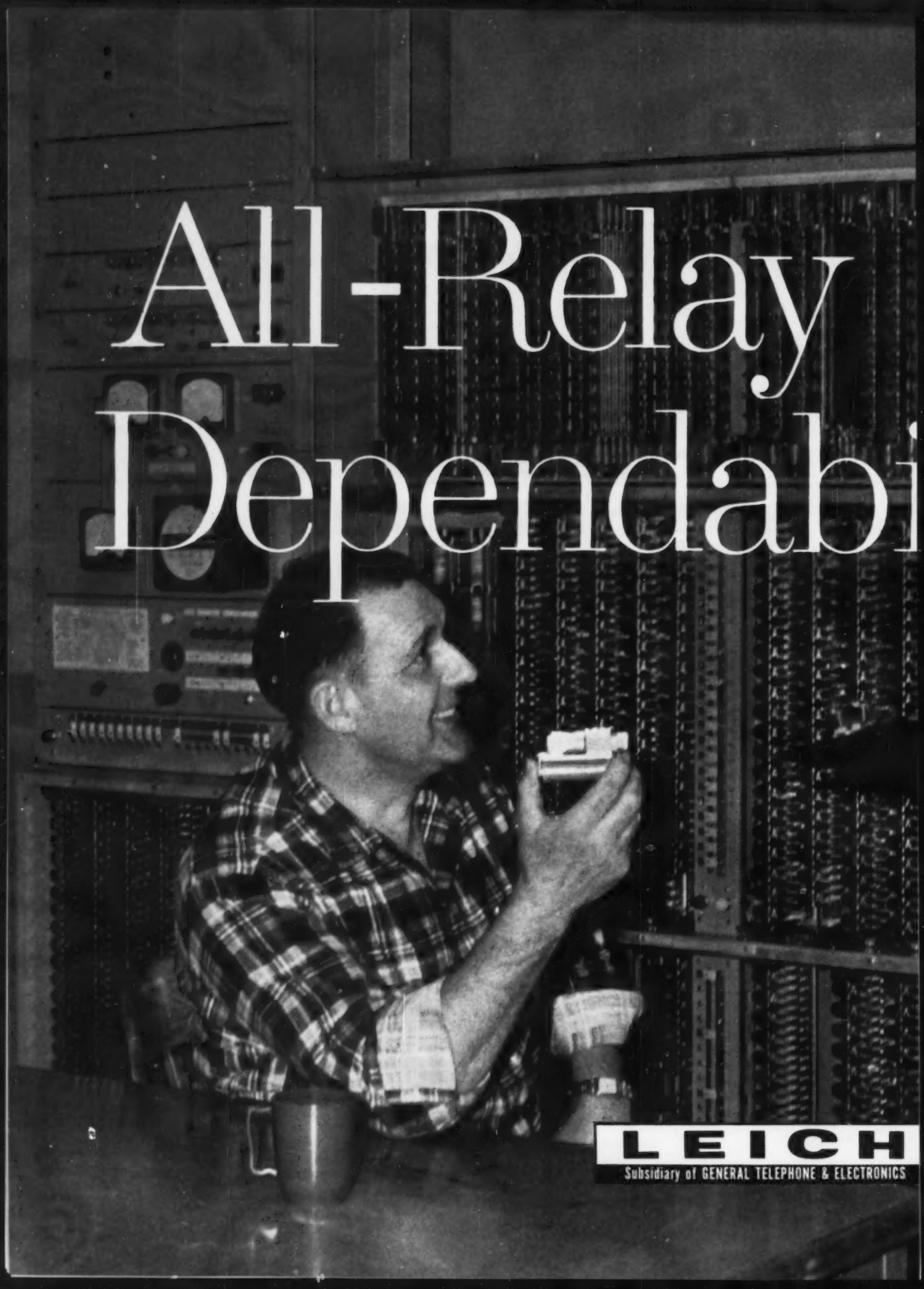
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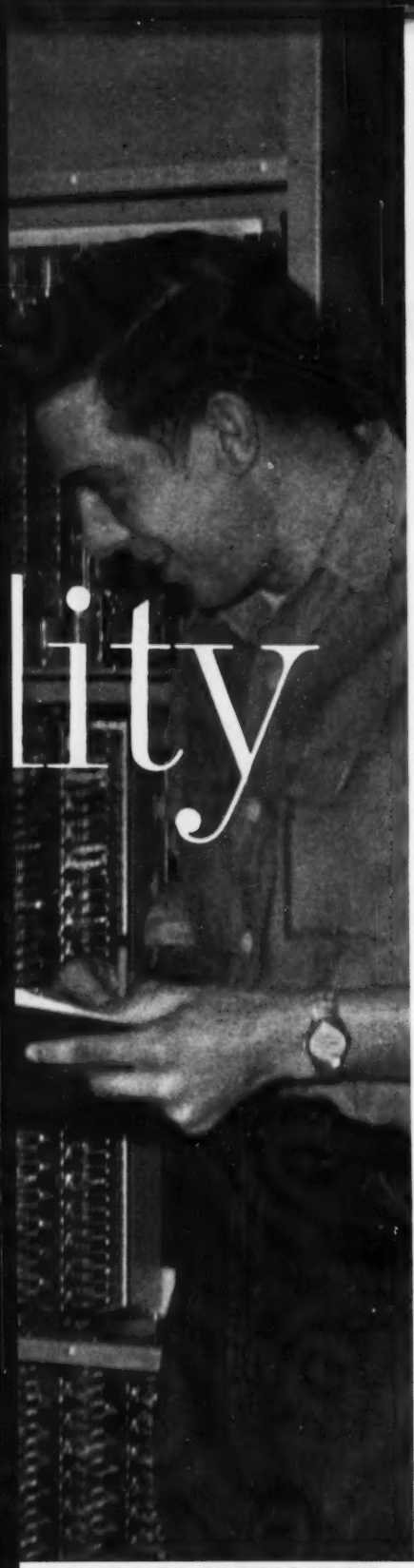

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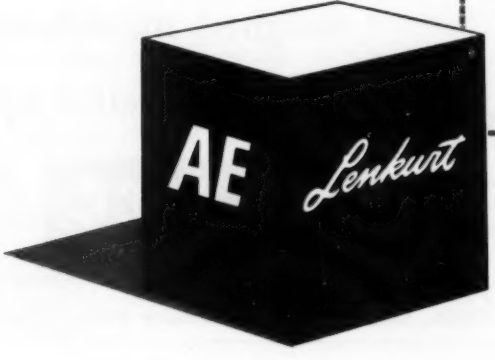

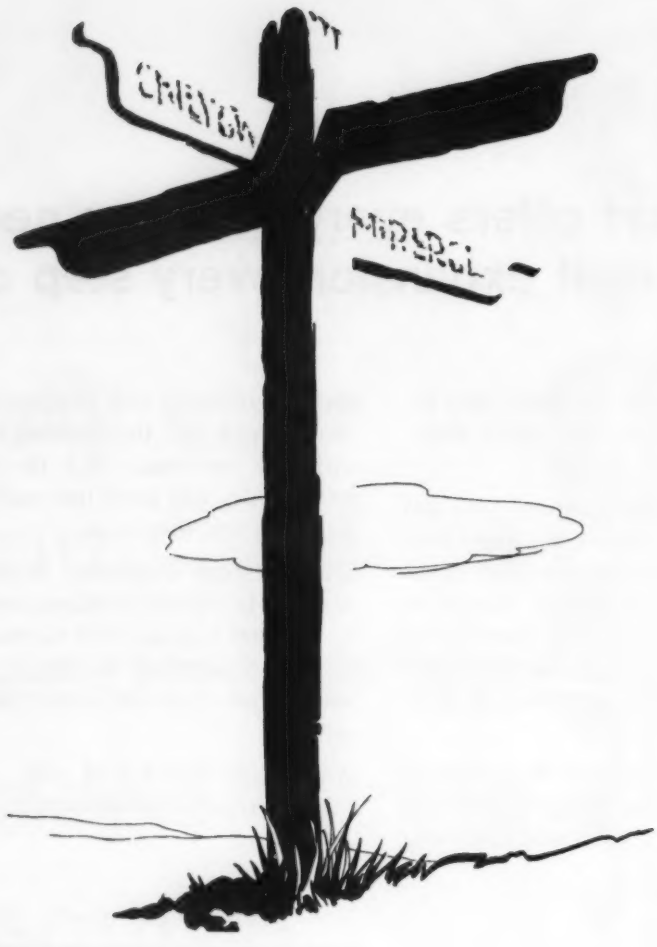

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Above: This 12-station master unit of the new Teletalk 1200 Series can be connected to provide secretive or non-secretive communication with other stations. Models are available from six to 48 station capacity. Below: Two-way conversation is provided over zero-level telephone lines with this Teletalk RM-B (AC) remote speaker station. Contains its own power supply, amplifier, attenuating pad and line-matching transformer.

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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR

AT&T faces big problem in holding future stockholders meeting with projected increase in shareholders. . . . More than 12,000 attended meeting on Apr. 15. . . . Points to democratic climate of such corporate meetings. Developments at FCC outlined.

A CONFLICTING engagement in another city on Apr. 15 prevented this writer from attending what may well be the biggest show on earth under one roof. Certainly it was the biggest meeting of stockholders ever held. Now that the old-fashioned circus under the big top has gone indoors, for big city audiences exclusively, it may well be that the American Telephone & Telegraph Co.'s stockholder meeting will qualify, in some respects, for the champion title in show business.

The attendance was better than 12,000 stockholders, and that is an impressive gathering any way you figure it. One would have to go into political conventions, religious conclaves, or outdoor stadium events to match that number.

When we stop to consider the action taken by the AT&T stockholders on Apr. 15 at the Kingsbridge Armory in the Bronx in New York City, it may well be that future meetings will have to be held outdoors. Readers of this department already know, of course, that the most important action taken at the stockholders' meeting was the approval of the 3-for-1 stock split, whereby some 68 million shares of AT&T stock will automatically become over 200 million shares, with more offerings in the offing.

That does not mean, of course, that the 1.6 million shareholders will automatically triple in number. But, certainly the tendency will be to increase the number of shareholders, very much, because of the wider distribution that the additional shares at a lower price (per share) will have. It would not be surprising, therefore, if the actual number of AT&T shareholders did not increase during the coming year to pretty nearly two million.

It seems like only yesterday (as a matter of fact it was in 1951) that AT&T proudly announced that it had one million shareholders. They made quite an event of it, as this writer recalls. And to think, within less than a decade, the number of AT&T shareholders is likely to be doubled! This means that as many more people will have invested in Bell System shares between 1951 and 1960 as have invested in it during the entire previous 75 years of the telephone industry's existence, following Alexander Graham Bell's famous invention.

There is much food for thought in such a mammoth event as 12,000 shareholders sitting down at a meeting lasting a little over five hours. Someone unfamiliar with the way large corporations are organized might be tempted to ask why such a small percentage of shareholders attended the meeting, even though it was by far the biggest in corporate history. The answer lies, of course, in the very convenient absentee vote afforded by the proxy.

As a matter of fact, nearly 60 million shares were voted at the meeting, which is a pretty good percentage of some 68 million shares then outstanding. No American election, federal, state, or local, ever comes near such a high percentage of eligible voters actually registering their sentiments. We think that even in a presidential election, following a hot campaign, our general voters do well if more than half of them go to the polls.

Your correspondent is moved to this observation because of the recurrent criticism that is sometimes made to the effect that corporate affairs are not really managed in a democratic fashion. Such critics point to the relatively small number of shareholders (compared to the number registered) who show up at stockholder meetings and conclude that the average shareholder has little to say in the management of the company. Because shares of large corporations in particular are so widely disbursed, they reach the further conclusion that big corporate management tends to become a self-perpetuating dynasty. They say it is responsible, in effect, to no one but itself, because *nobody* is organized well enough to throw it out of office—that it thus becomes a law unto itself.

But, such criticisms overlook the fact that it *is* possible to throw the management of pretty big corporations out of office, if the shareholders are stirred up sufficiently. In recent years, we have seen this happen on a number of occasions. The most notable recent incident was the switch in control of the New York Central Railroad, long held by a conservative management originally put in office by New York and New England banking interests. Readers may recall that the late Robert Young organized a proxy battle, aided by Texas capitalists, who were friends of his. When the votes were counted Mr. Young took control. That could not have happened, of course, if the shareholders of the New York Central had not previously become unhappy about earnings and dividend prospects.

The earnings and dividend prospects of the American Telephone & Telegraph Co. seem pretty good. And, the 3-for-1 split, plus the over-all increase

in dividends, certainly sweetened the pot as far as shareholders were concerned. The present performance of AT&T shares on the stock market reflects that judgment. So it is safe to say that AT&T management is safe from any proxy revolution in the near future.

But the point to be made here is that every corporation management is well aware of its constant responsibility for giving a good account of its stewardship to the owners of the company. These managers know that one or two passed dividends or curtailed dividends could quickly change a rosy picture into a fruitful field of stockholder rebellion. As a matter of fact, the very widespread character of large corporate stockholdings imposes a special responsibility on corporate management to see that no minority right is trampled, and that no cliques or blocks seeking special favors play an undue role in influencing management decisions. Indeed it is more likely that special interests can influence — through shareholders — the management of a small company more than that of a gigantic corporation, where millions could be spread on buying shares without making much of a dent in the percentage of shares to be voted.

If all the shareholders of the AT&T tried to meet in one spot, there probably would not be a place, even in New York City, that could accommodate such a colossal gathering of people, now running well over 1.6 million. That most do not attempt to attend, but are willing to send their absentee vote to the management by proxy, is another pretty good testimonial that democracy is working in corporate affairs and that the interest of shareholders is being protected to their liking. The democratic performance of corporate enterprise certainly stands up well, by comparison with the performance of any other democratic institution — political, economic, labor union, or what have you.

A good many of the 12,000 who did show up in the Bronx on Apr. 15 came for a lark. Women shareholders greatly outnumbered men, as they do on the registration books of the corporation. That hardy perennial Mrs. Wilma Soss (president of the Federation of Women Stockholders), without which no AT&T meeting would be the same, complained that the company ought to use closed circuit television in future meetings so that even more shareholders can participate. Maybe Mrs. Soss has an idea there. If such a plan were practical, every large city could have its own branch AT&T stockholders meetings channeled into the central meeting in New York City. One thing is certain, and that is, if these meetings continue to grow (as they probably will) from the whopping 12,000 record, AT&T will have to figure out some way of splitting up Mrs. Soss, 3 for 1, or else some of the stockholders are going to miss a long-time favored attraction at these events.

The actual business performed at the meeting—in addition to voting the split in shares—will have been too well publicized by the time these lines appear in print to bear repeating. AT&T President Frederick R. Kappel, in his report, told about the 20 million dollar laboratory Bell Telephone Laboratories, Inc., will build at Holmdel, N. J. He warned against the evils of inflation to which regulated utilities are particularly vulnerable, but he said that Bell will not change its conservative character as far as dividend policy is concerned. He declined to predict earnings, in reply to an inquiry. But he left the impression that AT&T easily hopes to cover the new $9.90 dividend (per three shares) by as wide a margin, if not wider—than the 1958 earnings covered the old $9.00 dividend.

FCC Developments

On Apr. 17 President Eisenhower announced the reappointment (effective next July 1) of a veteran member of the Federal Communications Commission. He is Vice Chairman Rosel H. Hyde, now rounding out 13 years of service as an FCC commissioner. This makes him the oldest commissioner in terms of service on the present board.

Commissioner Hyde, who fills a Re-

Two Loans Approved by REA

Telephone loans approved during the week of Apr. 13 by the Rural Electrification Administration will bring new or improved service to 3,180 subscribers as follows:

Brookings Lake Telephone Co., Brookings, S. D.; $710,000; Apr. 17.

This borrower was formerly known as the Brookings County Telephone Cooperative Association. It retains its cooperative status under its new name.

The loan will enable the company to improve service for 812 subscribers and to furnish inital service for 129 subscribers.

As a nucleus for the new service, the borrower plans to acquire the Farmers Mutual Telephone Co., Sinai; and the Battle Creek Telephone Co., Wentworth. These companies now furnish dial and magneto service to 907 subscribers. An agreement has been worked out between the borrower and Northwestern Bell Telephone Co. under which Bell will serve 95 of these subscribers.

The borrower plans to construct new automatic central offices at Chester, Nunda, Sinai, and Wentworth. Funds are also included in the loan to finance construction of new headquarters facilities south of the Brookings city limits.

REA loans to this borrower, totaling $1,139,000, will benefit 1,638 subscribers. The completed system will consist of five exchanges. The Brookings exchange is in operation furnishing dial service to approximately 570 subscribers.

Wilmer L. Davis is president and George Scully is manager of the Brookings Lake Company.

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Nocona (Tex.) Telephone Co.; $931,000; Apr. 17.

These funds will enable the borrower to improve service for 1,861 subscribers and to furnish initial service to 378 subscribers. The subscribers who will receive improved service are now served by the borrower's Nocona and Spanish Fort exchanges, and by the Bonita Telephone Co. and the Ringgold Telephone Co. The Nocona company proposes to acquire these latter facilities.

The borrower plans to construct new automatic central offices at Bonita, Nocona, Ringgold, and Spanish Fort. The building at Nocona will house both headquarters and central office facilities.

Subscribers in the three other exchanges will be able to call the Nocona central office without toll charge. A portion of the loan will also refinance the borrower's existing indebtedness.

D. G. Gardner Jr. is vice president and manager of the Nocona company.

publican vacancy, is so well-known and highly regarded in congressional as well as in regulatory circles, there can be little doubt of routine confirmation by the Senate. His background is that of a career federal employe, who joined the old Federal Radio Commission way back in 1928. That was the short-lived predecessor of the Federal Communications Commission, which came into existence four years later (1934).

Commissioner Hyde has been on the job with the FCC ever since that time, and he was first appointed to the commission itself in 1946. His new term would carry him up to July 1, 1966.

On the legislative front, the FCC has taken the initiative in an effort to satisfy congressional demands for a code of ethics for FCC members. There was recently sent to the U. S. Senate the commission's own suggestion for bills which would really be an alternative to the much broader measure introduced several weeks ago by House Commerce Committee Chairman Harris (D., Ark.). The main difference is that Harris' bill applies to all federal regulatory commissions—that is all of the big six, including the FCC. The FCC proposals would only affect the FCC.

Both the Harris Bill and the apparent FCC response to it are the result of hearings by the special House Legislative Oversight Sub-committee, which last year produced evidence of widespread contacts between FCC members and industry officials who appeared before the commission.

One of the FCC bills would prohibit anyone, including commission staff members, from making one-sided ("ex parte") presentations to commission members, about any case before the agency. This proposal does not go as far in banning such activity, however, as the Harris Bill would. Another proposed FCC bill would repeal the law permitting commissioners to receive payments for making speeches, or writing material for publication. A similar provision is contained in the Harris Bill.

There has not been so much activity in either the House or Senate on the question of ethics of regulatory agency members, and no action is expected this year. A Senate Judiciary Sub-committee has been created to study the problem at length, and the American Bar Association has an alternative proposal which is certain to receive considerable attention. Another bill by Senator Ervin (D., N. C.) is generally regarded as going too far and having little chance. It would virtually impose court rules and procedure on all regulatory proceedings.

The FCC is preparing to ask Congress for one other piece of legislation which has grown out of a red hot political controversy. This is to legalize the so-called booster stations for television reception in outlying communities. The argument over booster stations has turned out to be a regulatory hot potato as a result of a proposed rule by the FCC requiring licensing of hundreds of tiny television transmitters throughout the country which "boost" signals for better local reception. Some small communities cannot presently receive TV in any other way. So, the FCC is feeling pressure in Congress to go slow on cutting them off the air.

Recently, the FCC tentatively set a deadline of June 30 for cessation of operations. Then, in a sudden reverse of form, the commission decided to pass the buck to Congress. It is preparing to ask Congress to amend the Communications Act so as to legalize those TV boosters which were in operation before Jan. 1, 1959. There would be, however, some continuing regulation in the form of technical requirements to minimize operating interference.

VHF TV versus UHF

Late in April, the FCC, after considerable division of opinion among its own members, sent to Congress a report suggesting a solution to a very ticklish controversy in the field of television. With the present 12 channels in the so-called very high frequency range (VHF) virtually exhausted in the granting of station licenses all over the country, the pressure from some quarters has been strong to order television interests to move "upstairs" into the ultrahigh frequency (UHF) range where the channels are very much more abundant.

There are a number of reasons why the television industry does not want to do this. The main one is economic. Millions of television sets are equipped only to receive VHF programs and could not be changed without expensive conversion. Furthermore, the economic pattern of television sponsorship has been keyed definitely to the conventional VHF setup that advertisers are not interested in scattering their shot between two widely separated ranges. And, it is a very expensive shot. A few of those who have accepted UHF licenses have already found out how important this resistance of advertisers, as well as the resistance of viewers, can be.

The divided report which was sent to

(Please turn to page 47)

Convention Calendar

1959

Association	*Date*	*City*	*Hotel*
Wisconsin	May 13 and 14	Milwaukee	Plankinton House
Kansas-Missouri*	May 25 and 26	Kansas City, Mo.	Continental
Pennsylvania	June 1, 2 and 3	Buck Hill Falls	Buck Hill Falls Inn
California	June 3, 4 and 5	Los Angeles	Ambassador
Washington-Oregon*	June 11, 12 and 13	Seattle	Olympic
New York	June 15, 16 and 17	Schroon Lake	Scaroon Manor
Alaska	September	Anchorage	Unannounced
Tennessee	Sept. 9 and 10	Nashville	Hermitage
Arkansas	Sept. 14 and 15	Hot Springs	Arlington
Michigan	Sept. 15, 16 and 17	Grand Rapids	Pantlind
Rocky Mountain	Sept. 16, 17 and 18	Salt Lake City, Utah	Utah
New England	Sept. 21, 22 and 23	Bretton Woods, N.H.	Mt. Washington
West Virginia	Sept. 23 and 24	Davis	Blackwater Falls Lodge
North Carolina	Oct. 5 and 6	Pinehurst	Carolina
USITA Annual Convention	Oct 11, 12, 13 and 14	Chicago	Conrad Hilton
Virginia	Oct. 29 and 30	Roanoke	Roanoke
Alabama	Nov. 9 and 10	Birmingham	Thomas Jefferson
Georgia	Nov. 11 and 12	Atlanta	Dinkler-Plaza
Oklahoma	Nov. 18 and 19	Oklahoma City	Skervin
Florida	Nov. 30 and Dec. 1	Jacksonville	Robert Meyer

*Joint Convention

Opportunities in Mobile Telephone Service

By ALAN F. CULBERTSON*

The telephone industry stands at a turning point in mobile communications service. With radio manufacturers and miscellaneous common carriers making an impressive case before the FCC, the telephone industry must now decide whether it wants to participate wholeheartedly in mobile communications, or not to engage in the business at all.

THE commercial manager of nearly every telephone company in the United States can look out his office window today and see promising, but virtually untapped, sources of revenue passing by.

These potential revenue producers are the passenger automobiles and other vehicles moving along the street. Mobile telephones in cars offer a revenue prospect as exciting as recent successful drives to sell extensions and color telephones in homes. To date, however, most telephone companies have been slow to offer mobile service to the public and to provide the aggressive merchandising necessary to sell it and make it profitable.

Ever since the end of World War II, there has been much discussion inside and outside the communications industry about wire-free, personal communications which would move with the person from place to place at will. Rapid progress in the field of two-way radio has brought some of these dreams to the point where they now seem about to be realized on a relatively large scale. Yet, very little progress has been made in providing such communications as true telephone service.

Most people will agree that the ultimate in flexible communications is a telephone which can be rapidly and easily interconnected with any other telephone. But of the large number of two-way radios in service today, only an insignificant percentage are interconnected with the nation's telephone network. The remainder are operated entirely as private-line, dispatch-type systems, with utility far lower than the typical residence or business telephone.

The next few years are certain to see tremendous strides in the art of mobile communications. Broad-scale interconnection of fixed and mobile subscriber stations will be a matter of increasingly vigorous public demand. The Federal Communications Commission is preparing to re-evaluate assignment of frequencies in the spectrum of interest for this type of service.

These factors all add up to a tremendous opportunity and a challenge to the entire telephone industry and to the Independent telephone companies in particular to meet the needs of an ever-widening public appetite for communications services on a broad, mass-production basis.

Types of Mobile Service

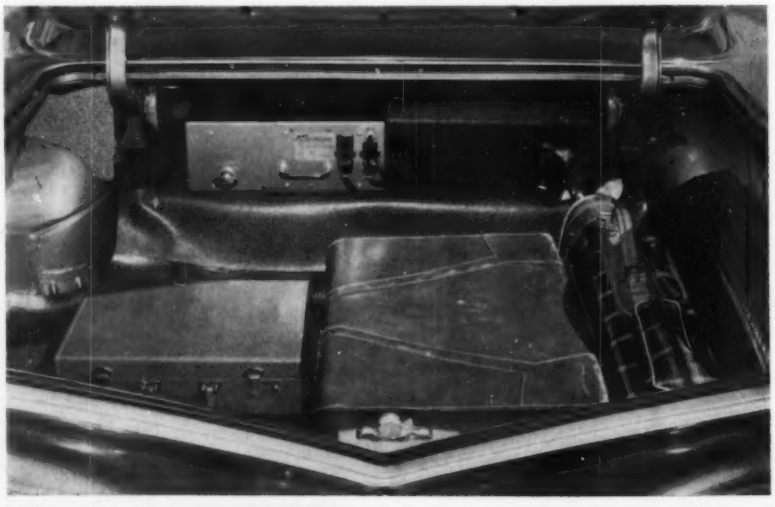
Mobile service offered by telephone companies falls into two broad types: public correspondence, and private systems.

Public correspondence systems operated by telephone companies generally involve unlimited access to the telephone exchange and toll network, on a tariff basis. They may or may not incorporate schemes of fully-selective subscriber signaling and/or subscriber dialing. In practice, however, practically all public correspondence mobile telephone systems are operated along the lines standardized by the Bell System.

This involves a fully-selective, frequency-shift calling scheme towards the mobile, and ring-down supervision from the mobile towards the operator. A very small number of systems incorporating partially selective signaling, voice paging, and two-way dial operation are also in use in the public correspondence mobile radio service.

Under FCC rules, public correspondence mobile radio service also may be offered by persons or corporations other than telephone companies. These "miscellaneous common carriers" are as-

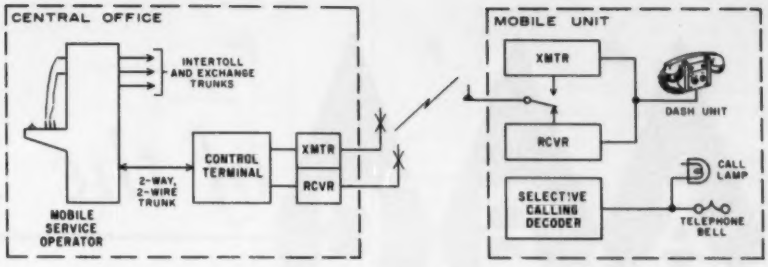
*Mr. Culbertson is manager, mobile telephone, for Lenkurt Electric Co., Inc., San Carlos, Cal.



Mobile subscriber station assembly fits easily into the trunk of an automobile and still leaves plenty of room for luggage, golf clubs and other items.

signed different frequencies in the same band with those assigned to telephone companies.

In general, telephone companies have not permitted interconnection on any basis between the radio systems of miscellaneous common carriers and the telephone network. There are very sound technical and administrative reasons for this policy. Some of them include transmission and switching arrangements in the Direct Distance Dialing (DDD) network, plus billing, credit and settlement contracts.



Block diagram of a compatible, manual mobile telephone system.

50-watt mobile base station and control terminal (bottom panel) in a cabinet for an indoor installation.

Private mobile radio systems are often operated for eligible licensees by the local telephone company. Under these "lease-maintenance" arrangements, the telephone company owns and maintains the equipment while the private user obtains the license and operates the systems as a part of his day-to-day business. The Bell System has recently announced its withdrawal from this business under the terms of the 1956 consent decree. But this decree, of course, does not affect the operation of Independent telephone companies.

Compatible, Manual Mobile Telephone Service

"Compatible" service means that when a mobile subscriber from another area drives into your territory he can place and receive calls through your base station. Conversely, when one of your subscribers on such a system is in territory served by another company, the same situation prevails—provided that numbering assignments and commercial arrangements have been properly coordinated.

Most Independent companies presently offering compatible manual service are doing so with the same control and selector equipment used by Bell System companies. This equipment is not well-suited to the requirements of mobile telephone service in smaller exchange areas. Its cost and complexity have, in the past, been a deterrent to Independent companies desiring to go into the mobile telephone business.

New equipment now coming on the market will make it much easier for telephone companies to establish compatible, manual service. Both the capital investment and the amount of engineering effort required for an installation are being substantially reduced by design engineering progress in this field.

"Manual" mobile telephone service requires full-time attendance by an operator. The control terminal is generally designed for interconnection to a two-way, two-wire trunk at a toll switchboard position. The fully-manned toll operator's position also handles mobile telephone service.

In this service, the mobile subscriber signals the operator by lifting his handset and operating his press-to-talk button, thus transmitting a carrier from his mobile transmitter. Circuitry in the control terminal operates to show a line lamp at the mobile service operator's position. The mobile service operator takes the call and makes the connection via her other outgoing trunks.

To place calls to a mobile unit, land subscribers are instructed to ask for the "mobile service operator." To place

(Please turn to page 42)

Relative usage of mobile radio.

A B C of the Telephone

by Frank E. Lee

THE INTRODUCTION of self-supporting cable is another good example of how new ideas are developed by study and improvement of existing methods and procedures.

Aerial cable has always been supported on messenger strand, because the cable was not strong enough to support itself when suspended from poles. A self-supporting cable is possible by building strength into the conductors. One way of doing this, is to use high-strength copper-coated steel for the conductors.

The resistance of a copper-coated steel conductor is slightly higher than the resistance of a copper wire of the same diameter. However, this is not a serious drawback in the development and use of self-supporting cable. The answer to the resistance problem is to use larger conductors in the self-supporting cable.

If the conductors of the self-supporting cable are larger, the size of the finished cable will have a larger outside diameter than a cable with the same number of pairs and solid copper conductors. A greater outside diameter may have disadvantages for 100-pair, 200-pair, and larger cables. However, for 6-, 11-, 16-, 26-, and 51-pair cable, the slightly larger outside diameter of a self-supporting cable does not appear to be a disadvantage.

The idea of building a self-supporting cable with high-strength conductors is not a completely new idea. Instead, it is more of a variation or enlargement on certain existing principles and practices.

Drop Wire Is Example

As an example, telephone drop wire actually is a single-pair self-supporting cable. A 6-pair drop wire is also available. As a rule, the 6-pair drop wire is used where a number of drop wires would otherwise be required to serve an individual building.

Drop wire generally is insulated with neoprene, or with layers of rubber and neoprene bonded to each other and to the wire itself. As a result, drop wire can be supported with a wedge-type clamp, a spiral-wrapped support, or a spiral-shaped grip.

Conductors of self-supporting cable usually are insulated with polyethylene. The cable sheath in most instances is made of polyvinylchloride or polyethylene.

Dead-Ending

Inasmuch as there is very little adhesion between the sheath and jacket, a self-supporting cable usually must be dead-ended with a relatively long grip.

A typical dead-end for a self-supporting cable is shown in *Fig. 1A*. This tends to spread the gripping surface over a larger section of the cable.

Part 88. OUTSIDE PLANT CONSTRUCTION—Section 14. Self-supporting cable and wiring at aerial cable terminals.

Section 1. Planning of additions to outside plant (TELEPHONY, Nov. 17, 1956).

Section 2. Laying out the pole line, clearances to be maintained, and grading requirements (TELEPHONY, Nov. 24, 1956).

Section 3. Selection, treatment, handling, storage, and gaining of poles (TELEPHONY, Dec. 1, 1956).

Section 4. Items of power equipment used in pole line construction and maintenance. Also discussed are depth poles set in various types of soil (TELEPHONY, Dec. 8, 1956).

Section 5. Purpose of guy wires and factors involved in their proper placement (TELEPHONY, Feb. 16, 1957).

Section 6. Types of guy wires, how to determine guy loads, and the selection of guy strand (TELEPHONY, Feb. 23, 1957).

Section 7. Selection and installation of anchors (TELEPHONY, Apr. 27, 1957).

Section 8. Selection and installation of anchors—continued (TELEPHONY, May 4, 1957).

Section 9. Installation of new cable facilities—lead and plastic (TELEPHONY, Sept. 14, 1957).

Section 10. Installation of new cable facilities—lead and plastic (TELEPHONY, Mar. 8, 1958).

Section 11. Methods used to fasten aerial cable to messenger strand (TELEPHONY, Aug. 9, 1958).

Section 12. Methods used to fasten aerial cable to messenger strand —continued (TELEPHONY, Aug. 16, 1958).

Section 13. Application of lashing rods, lashed cable supports, and typical aerial cable arrangements (TELEPHONY, Apr. 25, 1959).

The cable is supported at intermediate poles with tangent support. A tangent support, with a spiral-formed armor rod used for sheath protection, is illustrated in *Fig. 1B*. This type of armor rod is made with several lengths of wire formed in a spiral to fit a particular size cable.

A self-supporting cable usually is dead-ended in both directions at terminal poles. Sufficient slack to reach the terminal is left between the dead-ends.

Spans from 200 to 350 feet, based on the number of pairs, are quite satisfactory with self-supporting cable. The amount of sag is closely related to the length of the span. For the longer spans, the sag is about 30 inches. The safety factor, with a storm loading of one-half inch of ice on the cable and a wind of 60 MPH, is two. This means

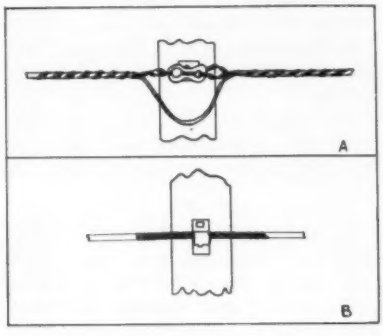


Fig. 1

that the load of the span, plus the weight of the ice and the additional load of the high wind, creates a combined load equal to only one-half the strength of the cable.

Wiring at Aerial Cable Terminals

Wiring at aerial cable terminals should be arranged on the basis of the following general requirements:

(1) The wiring and rings must be located where they will not interfere with opening and closing the terminal cover.

(2) Sufficient slack should be provided so that a given wire will reach any binding post in the terminal.

(3) The wire should follow established ring runs to pole-mounted terminals. This confines the wire to the minimum space required on a pole. As a result, the pole is safer to climb. Also, tracing an individual wire from, or to, a particular pair of binding posts is easier.

(4) The wiring at the cable terminal should be neat when it is installed, and it should be kept neat when wires are added to, or removed from, the terminal.

There are a number of different types, sizes, and shapes of aerial cable terminals. Some are pole-mounted.

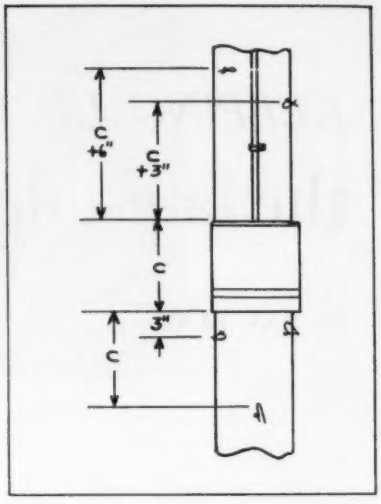


Fig. 2

Others are mounted on the messenger strand.

Fig. 2 shows a typical pole-mounted terminal equipped with a cover that is pushed up to open. Terminals of this general type are available in 6-, 11-, 16-, and 26-pair capacities.

Location of Terminal

The location selected for the terminal should provide sufficient overhead clearance to allow the cover to be easily removed. A bridle or drive-ring is placed above each edge of the terminal.

The ring on the left generally is placed the height of the cover, plus 6 inches above the terminal. The ring on the right is placed the height of the cover, plus 3 inches above the terminal.

Two rings are placed 3 inches below the edge of the terminal—one below the left edge and one below the right edge. A third ring is placed a distance below the center of the terminal equal to the height of the cover.

The upper left-hand ring is the common, or key ring, in wiring the terminal shown in Fig. 2. All wires pass through this ring. From this point, the route of the wire is determined by the side of the terminal on which the binding posts of the cable pair to be used are located.

For example, wires are routed as follows, starting from the top left-hand ring:

(1) Wire to be terminated on right of terminal—run the wire down the left side of the terminal; through the three rings at the bottom, and up the right side to the entrance hole opposite the pair to be used.

(2) Wire to be terminated on left of terminal—swing the wire over the stub-cable from left to right, and run it through the top right-hand ring; down the right side; through the three rings at the bottom and up the left side to the entrance hole opposite the pair to be used.

Running the wire through the lower bridle ring provides sufficient slack to permit the wire to be terminated on any other pair of binding posts. Changes of this type are generally required if a future plant rearrangement involves the drop wire under consideration.

Strand Mounted Terminal

Fig. 3 shows the wiring arrangement commonly used at strand mounted terminals. Terminals of this type usually are installed either to the right or left of the pole. The drop wires are attached to the pole and run from a common ring to the terminal. This general rule also applies for span drop wires, which

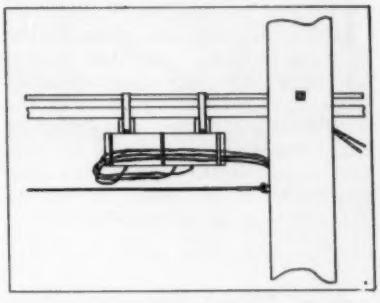


Fig. 3

run from the pole to a strand attachment, and then to the building.

The drop wires are run from the common ring, through the three rings of the terminal, shown in Fig. 3, then to the entrance hole associated with the binding posts to be used.

Again the main objective is to provide sufficient slack in the drop wire to reach any other binding posts in the terminal.

For example, consider the possible situation, if the drop wire terminated on the binding nearest the pole, were run only through the first ring on the terminal before being terminated. A splice would be required if the wire were to be moved to a pair of binding posts further from the pole at some future date.

Drop wire installation is discussed in detail in Chapters 20 and 21 which are included in Vol. I of the reprint editions of this series.

Splicing Aerial Cable

One of today's most valuable books on cable splicing is titled, "Cable—Modern Methods of Fault Location, Installation and Splicing," by Daniel Seitz. Mr. Seitz's book has been reprinted from a series in TELEPHONY, entitled "Cable Splicing."

(Please turn to page 52)

KEEPING UP WITH the latest developments

By RAY BLAIN

THIS is the seventh and final article, in which our technical editorial director describes various new items of equipment of interest to Independent telephone companies. The sixth article appeared in the Apr. 25 issue. Readers desiring more information on any of the products described may write to Mr. Blain in care of TELEPHONY or to the manufacturer.

* * *

Aerial Elbow. (Fig. 114). Three years in the development stage, the new Holan Elbow—the first cable-controlled aerial elbow—has been introduced.

The double-armed, twin-bucket unit has direct-acting, aircraft-type controls that provide for easy operation and a minimum of maintenance.

Fig. 114. Aerial elbow.

Holan engineers developed an exclusive control system that has hydraulic lines extending only to the cylinders; no lines pass through the hinged joint between upper and lower arms. In addition to eliminating hose and tubing, the Holan control system does away with oil leakage and bleeding of lines to eliminate sponginess. Any maintenance needed requires no special tools.

Because the control cables are under constant tension, the control levers have a positive feel and there is instantaneous response to movement of the levers. The three levers are located on the support shaft of the right-hand bucket and do not interfere with arm movements. A set of levers is also mounted on the mast for emergency control.

One lever controls the lower arm; a second, the upper arm; and a third, the rotation. A vacuum control valve is coupled to the power take-off shifter linkage to prevent truck movement while the elbow is being operated. Another safety device, an ignition cutout circuit, insures both arms being nested in support brackets before the truck can be moved.

The elbow has a maximum ground-to-floor height of 36 feet, 10 inches. It reaches 31 feet, 4 inches horizontally, and will bend 8 feet, 8 inches below ground level. The upper arm travels 270 degrees; the lower arm, 80 degrees. The mast rotates 360 degrees continuously in either direction. Upper and lower arms are controlled by double-acting hydraulic cylinders working in combination with aluminum drive sheaves.

Work buckets—22 by 22 by 38 inches deep — are made of non-conductive Fiberglas—reinforced plastic. They are supported by a knee-type brace insulated from the upper arm. A special flare at the bottom of each bucket provides foot room for comfortable standing while working. Capacity of the elbow is 600 pounds.

A Fiberglas insert in the upper arm provides extra protection against high voltage.

This elbow is designed for tree trimming and general overhead cable inspection, construction and maintenance.

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Splice Separator. (Fig. 115). When drop wire is spliced with compression type sleeves there is no need to stagger splices if the new National Telephone Supply Co. splice separator, or sleeve spacer, is used. This device, which is a

Fig. 115. Splice separator.

web of plastic insulation, fits neatly between the parallel compression sleeves of the splice. It not only eliminates the need for staggering the splice, but is also neater and saves time and tape.

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Made-Up Dead-Ends. (Fig. 116). Loop-type dead-ends are for use in dead-ending the extra high strength steel or Copperweld wires that are difficult to bend into the loops necessary

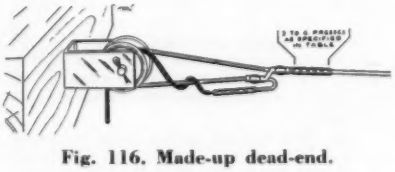

Fig. 116. Made-up dead-end.

for the usual type of dead-ending. These National Telephone Supply dead-ends can, of course, also be used on the lower strength steel, copper, or Copperweld conductors.

Fig. 117. Packaged equipment plan.

Packaged Equipment Plan. (Fig. 117). The intent of manufacturers, in general, is to standardize a product so that it will perform the optimum job for the greatest number of customers. However, for any one manufacturer to specify a pole line construction and maintenance equipment package has been, in the past, a rather far-fetched idea. It was thought that there were just too many variables; too many manufacturers of various components and too many individuals who have spent years learning about this type of equipment and are certain that they know how best to combine the various components.

However, in mid-1958, Tel-E-Lect Products, Inc. published a catalog containing four recommended packages, comprising hydraulic derrick and digger units and mechanical derrick and digger units in front and rear-mounted models. To further the idea included in this literature were recommendations as to the size of the chassis this equipment should be mounted on; size of the winch; type of power take-off, and the drive elements. Ordering information sheets were also provided. It is believed that this is the first time that a manufacturer has come out with specific recommendations as to sizes and types of equipment and at the same time quoted prices for all equipment.

By using the information furnished in the ordering sheets, a prospective customer may easily develop on paper a high quality and efficient line construction or maintenance truck. Furthermore, he may determine at once, by totaling up the columns which represent the equipment selected, what it will cost.

That this idea was met with enthusiasm is indicated by a personal survey of major telephone companies made by representatives of this manufacturer during December, 1958. There was virtually unanimous agreement that the package equipment idea is thoroughly practical and workable for the majority of utility companies.

•

Push-Button Hydraulic Equipment. (Fig. 118). With Tel-E-Lect's standardization of its products came the development of a method for operating the hydraulic derrick, digger, winch, and other equipment by push-button.

The push-button control switchbox has a number of safety factors built

Fig. 118. Push-button hydraulic equipment.

into it. Of greatest importance is the fact that should the box be dropped, or a control otherwise released, any equipment that had been operating would immediately come to a stop. By the use of extension cords, true remote control of equipment may be effected. These cords have male fixtures at one end which plug into the truck switchbox socket.

•

Carbide Digging Blades. (Fig. 119). These new blades, recently introduced by Tele-E-Lect, are made with carbide digging surfaces having a hardness greater than is generally used for this type tool. Because hard, deep frost provides an excellent test condition, these new carbide blades have been given rigorous workouts by actual pole line construction crews in areas where frost conditions are unusually severe.

Working in an average of 30 inches of frost, the crews used the blades for 160 16-inch diameter holes, 6-feet deep. During the digging period, there was no time lost in changing blades, having blades reworked or repairing broken

Fig. 119. Carbide digging blades.

blades. Perhaps even more important, by using these blades, each hole was dug in an average time of just over nine minutes, the company states.

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Cable Tie. (Fig. 120). This is a nylon, self-clinching cable tie that is designed to replace the lacing of cable forms. The one-piece molded strap, by Thomas & Betts Co., has a chordal cross-section with two small raised longitudinal ribs and a rectangular eye at one end. In use, the convexed ribbed side is applied

Fig. 120. Cable tie.

toward the wire bundle. The free tapered end is threaded through the eye, then twisted. Locking recesses in the eye boss, at right angles to the eye, prevents the strap from untwisting and slipping back. The chordal construction distributes the compression to avoid concentration at the edges, while the ribs prevent lateral movement.

This device may be used on cable forms from 1/16 of an inch to 1¾ inches in diameter. To install, the tie is placed around the cable form and the end threaded through the eye and drawn up snugly. The plier type tool is then used to cinch the tie tight, and twist it 120 degrees, cutting off the excess.

•

Wire Snubbing Clamps. (Fig. 121). These clamps, consisting of a right and a left, have been designed by General Machine Products Co. for snubbing line wire to insulators in sagging and tying the wires at point transpositions. This arrangement will be found much better than the usual method of snubbing with a pair of slack blocks.

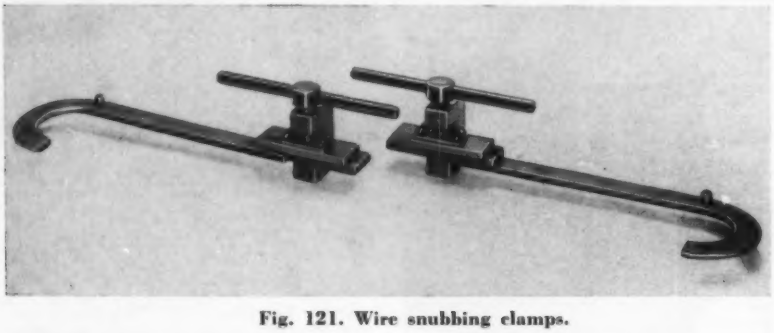

Fig. 121. Wire snubbing clamps.

This tool consists essentially of a screw-operated wire clamp rigidly attached to a flat hook for engaging the wire groove of the insulator. The weight per pair is only 3½ pounds.

•

Guy Clamp Holder (Fig. 122). This tool, also introduced by General Machine Products, is a malleable iron casting equipped with a pocket for holding guy clamps while tightening the bolts when installing clamps on the strand.

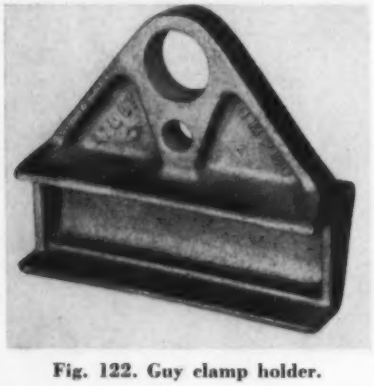

Fig. 122. Guy clamp holder.

Guy failures can often be traced to the fact that the bolts in guy clamps were not properly tightened. Tightening of the bolts in clamps is not a difficult task when this tool is used.

The tool is provided with a 1-5/16-inch hole for attachment to the rear end of a line construction truck. Lugs which bear against the edge of the scuffle plate prevent rotation of the holder. A 9/16-inch hole permits attachment to the truck vise bracket with a ½-inch bolt.

•

Operator's Purse Holder (Fig. 123). A convenient place for an operator on duty to keep her purse and keep the key shelf clear has always been a problem. This is now solved, however, by the use of this General Machine Products purse holder which is mounted on the operator's chair—in the clear, but still conveniently at hand.

This device is made of steel and has a hinge which allows for a firm grip on the handbag. It is furnished in green or maroon enamel.

Fig. 123. Operator's purse holder.

•

Hydraulic Power Tamper (Fig. 124). This General Machine Products device is designed for use in power tamping

Fig. 124. Hydraulic power tamper.

the backfill around poles and in trenches. It may be driven by a hydraulically equipped line construction truck or by a small, gas-engine-powered unit.

When poles are tamped with this tool, they will be held securely in line, thus eliminating line straightening later.

Trenches may also be compacted so that there will be no settling over a long period of time.

The economical operation and ease of handling make this tamper desirable for pole line construction, underground cable construction, and street and road crossing work. The complete weight, with extension feet, is 115 pounds.

•

"B" Lashing Wire Remover (Fig. 125). This tool is 32 inches long and is designed by General Machine Products for use in removing lashing wire from lashed aerial cable. It consists of a tapering steel rod frame projecting ahead of a steel saddle frame in which upper and lower rollers are mounted.

The lower roller and a gate at the side of the forward pointed end of the rod frame are hinged for attaching to or removal of the tool from the strand. The weight of this tool is only 7½ pounds. *(Fig. 125 is on page 54.)*

•

Cable De-Ringer Tool (Fig. 126). This General Machine Products tool is designed to quickly disconnect old cable

(Please turn to page 54)

today's Highlights

of finance-taxes-business trends

by Willard F. Stanley

BOND YIELDS GO UP AGAIN: After holding steady in the face of the recent increase in rediscount rate, bond yields rose again in the early part of April. New double-A-rated utility bond offerings were priced to yield over 4.6 per cent compared with yields around 4.5 per cent for similar new offerings in late and middle March. The decline is illustrated by a Wall Street Journal tabulation showing that at Apr. 17, 12 new utility offerings had average yields, based on then-current bids, seven decimals (0.07 per cent per annum) above the average yields indicated by their original offering prices.

Both long and short-term federal government securities likewise showed weakness recently, due, no doubt, to the approach of the substantial May federal refunding operation. Under present conditions it is not expected the Treasury will attempt to "stretch" out federal debt maturities by offering long-term securities in connection with the forthcoming refunding. But uncertainty on this score still remains an adverse market factor.

There are fears, too, of further rediscount rate rises, in the light of ever-increasing recovery in the economic picture. While such a step seems unlikely at present, even its possibility is sufficient to dampen enthusiasm in the bond market.

Continued close watch on federal fiscal plans and timing of new funded debt offerings of utilities to avoid periods of federal financing, both remain highly desirable. Under present conditions, the policies of the federal government are the most important single factor affecting future bond yields.

Financing by utilities to meet their funded debt money needs seems indicated in accordance with normal schedules and procedures, without either acceleration or deferral. While most informed sources look for somewhat higher bond yields as the year progresses, nothing presently appearing on the horizon indicates a change drastic enough to justify departing from normal schedules.

With the prices of utility equities continuing to nudge upward, along with the general market, it's needless to say that utilities are well advised in taking advantage of these favorable levels to dispose of common stock which it is necessary or advisable to sell for a considerable period into the future—a year or even longer.

* * * *

RECOVERY NOW ALMOST COMPLETE: It was recently announced that the index for industrial production had established a new all-time high. This includes, of course,

Mr. Stanley, formerly a utility financial executive, is now president of Corporate Services, Inc. of New York City and is well known as a financial writer. He is a member of the Controllers Institute of America and the New York Society of Security Analysts. He serves on the Finance Management Committee and the Tax Committee of the Controllers Institute (N. Y. Control). His articles are appearing once a month in TELEPHONY.

full recovery from the decline during the recession. Practically all business indices reflect continued advances, although the recovery has had a varied impact on different regions and communities. There are "pockets" of unemployment which continue to be a matter of concern, despite indications that unemployment improved in March.

First National City Bank of New York's April "Monthly Letter on Business and Economic Conditions" stated that some 3,600 corporation reports showed an average decrease of 10 per cent in 1958 earnings compared with 1957. Profit margins of these companies (which exclude banks and finance companies) were reduced in 1958 from 6.1 to 5.5 of gross sales dollars. This compares with an average profit margin of 6.4 for the postwar decade 1946-1955. Net income, as a return on corporate net book value of assets (i.e., "net worth") of these companies, averaged 9 per cent in 1958.

There are indications that plans for spending for expansion have been increased dollar-wise, and that 1959 will show a rise in capital expenditures considerably above that originally estimated. If this higher expansion level is realized, it cannot fail to affect favorably further improvement in "heavy" industries, thus contributing to further increases in over-all net income, employment and gross national product.

* * * *

FLASH RED SIGNALS FOR STOCK MARKET: For the first time since the current "bull" market got under way back in the fall of 1953, there have recently been numerous warnings to the investing public regarding stock purchases. The New York Stock Exchange and the Securities & Exchange Commission, as well as several advisory services and brokerage firms, have set up "red" light signals on future stock investment.

Most of these warnings have concentrated on purchases of stocks based on "tips" or "rumors," but their aggregate effect may well extend to affect purchases of sound equities, including the "blue chips," where prices have risen to fantastic levels in relation to past and projected earnings and dividends. To date the only effect of these warnings seems to have been to reduce activity in "special situation" stocks and channel purchases into blue chips to a greater extent.

It is notable that on two active, upward-moving days in the week which began Apr. 13, the market rise was "sparked" by AT&T—hardly in the speculative category. But regardless of shifts in emphasis, stock price averages continue their ascent.

March was a rather desultory month marketwise, with a small decline registered by the averages, but since the turn of the month, buying has been resumed, with the result that the New York Times average of 50 combined stocks had risen, by the close at Apr. 22 to reflect the following percentage increases over the average at the end of the following years:

Per cent increase over year-end of: 1956—16 per cent; 1957—46 per cent, and 1958—7 per cent.

This compares with an increase of about 4 per cent from the 1958 year-end at the close on Mar. 18, 1959.

What is the prospective stock purchaser to do? First—and naturally be extra careful in selection; next, consider temporary investment in government or other high grade bonds, to take advantage of what look like extra high yields on these securities; and, finally, consider utility stock equities as the "lesser evil" to protect investments in the event of a market decline.

Many utilities are scraping the ceiling in terms of price related to earnings and dividends, but most of them still seem to offer substantially more protection than the greater part of industrial equities.

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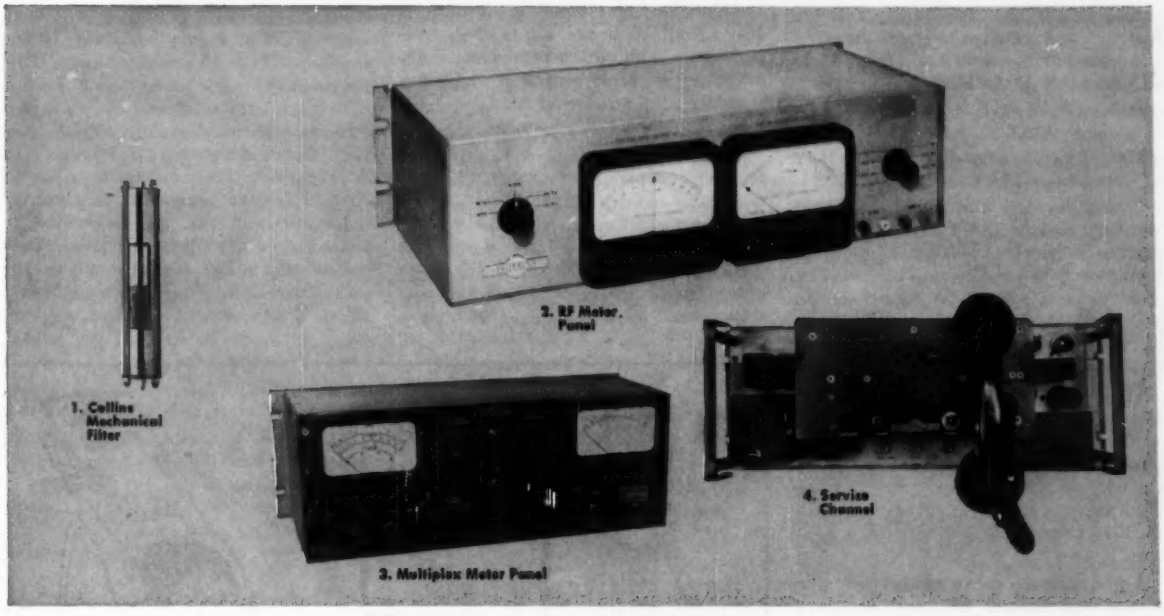
The electrical and mechanical design of Collins Microwave systems insures low maintenance costs and reduces circuit outages to the absolute minimum



1. Single sideband suppressed carrier multiplexing is simplified and made more economical by the use of Collins' Mechanical Filter. The steep skirt attenuation prevents co-channel crosstalk. The filter is a small, permanently tuned, hermetically sealed unit. Deterioration of system performance by coil aging, humidity, and other detrimental effects is eliminated.

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4. The Collins Microwave service channel provides simultaneous voice transmission and reception, with signaling, among all stations in a system on a party line basis. Direct modulation of the microwave equipment is employed without using the carrier facilities.

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Mother's Day Origin Traced To Ancient Beginnings

By Mayme Workman*

THE PLACE of honor that has always been Mother's can be seen from mankind's earliest records.

The tribute due "thy father and thy mother" was included in the Bible's Ten Commandments—inscribed thousands of years before the birth of Christ.

Aeschylus (525-456 B.C.) wrote: "'Honour thy father and thy mother' stands written among the three laws of most revered righteousness."

Down through the ages, the great writers, artists, poets, composers, statesmen, have turned to "Mother" as a source of inspiration for their works. Yet, it remained for a determined young Philadelphia woman to come up with one of the world's most worthwhile tributes to Mother—Mother's Day!

Prior to that, the nearest thing to Mother's Day, as we know it, had been a "Mothering Day" in medieval England. On this day all young men and women who were apprenticed away from home were asked to journey back to their hometowns and visit their parents.

For awhile, to go "a mothering" was a very real part of life in England—a time when children expressed their love for their mothers through special celebrations and gift-giving. After a time, however, "Mothering Day" faded from history and it was not until 1907 that anything was done toward setting aside one day for mothers.

In that year—on the first anniversary of her own mother's death—Miss Anna Jarvis of Philadelphia asked her church to hold special services in honor of mothers everywhere.

By the next year, churches throughout that city had taken up the idea. It continued to spread and, soon after, the governor of Florida designated a legal Mother's Day in his state.

Then, in 1914—climaxing seven years of pioneering on the part of Anna Jarvis—both houses of the 63rd Congress adopted Public Resolution 25—the official declaration of Mother's Day.

May 8th of that same year, President Woodrow Wilson issued the first proclamation declaring Mother's Day to fall on the second Sunday in May.

Public Resolution 25 makes it the duty of the President of the United States to request the observance of Mother's Day on that second Sunday in May. And . . . in the words of the resolution . . . the nation honors its mothers—"the greatest source of the country's strength and inspiration."

How can Mother's Day best be observed: By the whole family performing some gracious act, showing their love and esteem for the one whose devotion has meant so much to the family; by encouraging mother to spend the day in such a manner as to bring her the greatest satisfaction; by making her the recipient of gifts that will have usefulness, beauty or intrinsic worth.

There will, of course, be many instances where economic circumstances do not permit any great outlay, financially . . . and any small gift or word of appreciation will be all the more acceptable. Gifts have a spiritual value far greater than their financial worth. Love and devotion are essential to every worthwhile observance of Mother's Day.

Happy Mother's Day to all mothers in the telephone industry!

*Mrs. Workman is TELEPHONY's Traffic Editor.

Cutting Back the Debt

"Governments are no different than individuals in money matters. If the individual fails to practice thrift, if he continually spends more than he earns, he's headed for trouble. So with a government. It may get by longer than the individual but there's always a day of reckoning. So we can no longer afford mere talk about economy. We must insist that our lawmakers really practice it. 'Sound as a dollar' once meant something. We must see that it means something again." — Elsinore (Cal.) *Leader-Press.*

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

A FIELD trial is being planned of a combination power-and-telephone cable for use in "pre-wiring" new homes during construction. The cable to be used in this field trial consists of an Underwriters' approved plastic-sheath cable, to which standard telephone 6-pair jacketed inside wiring cable is attached by means of a plastic envelope surrounding both groups of conductors.

It is planned to terminate the two services in combined outlet boxes, with a metal partition between the power and telephone terminations.

Other field trials now in progress make use of an inexpensive 6-pair telephone cable for use in pre-wiring new homes. Combined power and telephone outlet boxes are also being used in some of these trials.

•

It is our opinion that some business concerns are presently spending more to prevent their employes from using business telephones for personal calls than it would cost to give them this service. For example, a large engineering concern may restrict its telephone service to company business only.

As a result of this restriction, when it is necessary for a high-salaried engineer to make a personal call, perhaps to inquire of his wife as to the condition of a sick child, it is necessary for him to leave his desk and locate a paystation. In many cases, the paystation will be busy and he must wait his turn. His time lost, in the average case, will cost the company many times the price of the telephone call. In addition, this practice does not contribute to good employe-employer relations.

We also frequently hear the fear expressed that with the country-wide adoption of DDD service, stealing of long distance calls will become a common practice. In other words, maids, baby sitters, and other help will take advantage of a convenient telephone to call a friend or relative at some distant point. It has even been suggested that telephone instruments be locked.

From what we have been able to learn, however, from areas that have enjoyed DDD service for some time now, these fears are groundless. It must be agreed that, in general, most people are honest and that the great majority will not steal—even a telephone call.

We reiterate our opinion that any restriction of telephone service proves a detriment to the subscriber, the general public and the operating telephone company.

•

We have received a letter from Ray Hanzel, of the Minnesota Telephone Co., Wheaton, Minn., requesting information as to how he can fabricate an exploring coil to be used to locate faults in buried cable without the need of digging.

We seem to remember that a device used for this purpose consisted of magnet wire wound on a wooden bicycle rim. We have forgotten the gauge of the magnet wire and the number of turns used. If any of our readers have information on how to construct this device, it will be appreciated if you will let us hear from you.

•

The *New Jersey Bell Magazine* informs us that 8,507 drivers of that company recently received safe driving awards. Heading the award rolls were 196 drivers who have achieved unblemished road safety records since this company was established 31 years ago.

In all, 8,507 drivers were honored for no-accident driving during 1958—the largest number ever so cited. In accomplishing their outstanding record, these drivers piloted their 4,000 vehicles a total of 34,650,000 miles through good weather and bad, amid steadily increasing volumes of traffic.

A total of 669 motor vehicle accidents involving company cars and trucks was recorded during 1958, 97 less than the previous year. Though 14 vehicles were so completely demolished that they had to be junked, no on-the-job fatalities resulted, continuing a death-free safe driving record which goes back to 1918. Unhappily, there is a debit side to this ledger. Three employes were killed in off-duty highway accidents.

•

We often wonder why so many public address systems are of such poor quality. Recently, we attended a lecture given by a large automotive company at one of its training centers. This was an excellent lecture, and would have proved extremely interesting, except that the public address system howled, cracked and cut-out to such an extent, that it was impossible to get much from the speaker's remarks.

It is our opinion that many of these public address systems are not properly designed in the first place. There is good equipment available that can be used to provide satisfactory service. Even good equipment must, however, be properly maintained if it is to give good service. It would seem that since there is a real requirement for public address service, it should be properly engineered, installed and maintained. Otherwise, it may prove to be a liability rather than an asset.

•

Our long-time friend, M. L. Luichinger, general defense coordinator for the Indiana Bell Telephone Co., has retired after 45 years of service.

Marty informs us that he expects to remain in Indianapolis. We join with his many friends in the hope that his Golden Years will be many and enjoyable.

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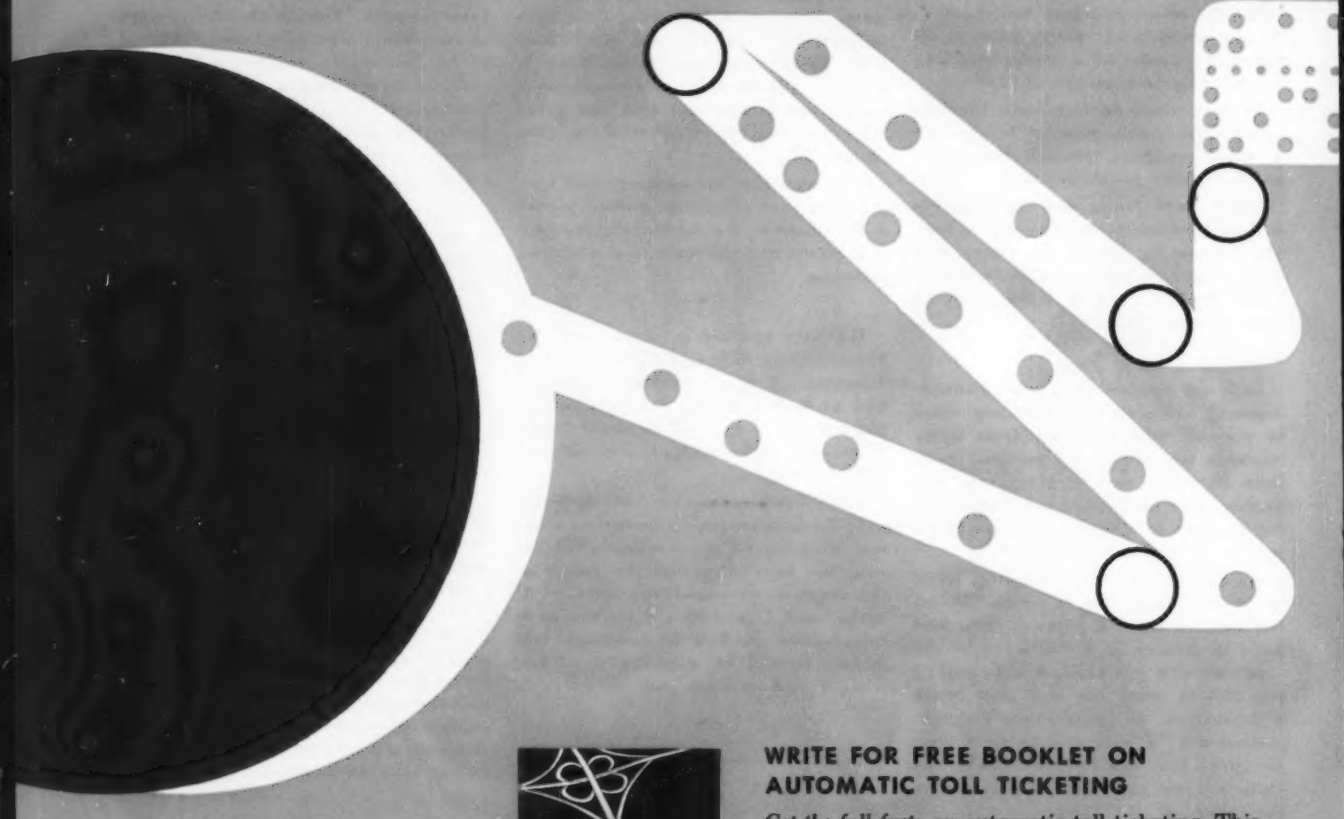

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Courts and Commissions

Seek Rate Raise, Purchase Approvals in Pennsylvania

The Rural Telephone Co., Knox, on Apr. 9 asked the Pennsylvania Public Utility Commission to approve an annual rate increase totaling $28,200. The company serves 1,225 subscribers from its Knox exchange. It said it needed the additional revenue to pay for a modernization program to provide dial service.

•

The Commonwealth Telephone Co., Dallas, has asked the Pennsylvania Public Utility Commission for approval of the purchase of the Ferndale Telephone Co., Ottsville, it was reported on Apr. 11. The Ferndale company serves approximately 650 stations and is automatically operated.

Grant Interim Rates; OK Rate Increase in Kansas

The Kansas Corporation Commission on Apr. 8 authorized the W. E. G. Dial Telephone Co., Inc., of Gardner, to collect interim dial rates at Osage City, when the exchange is cut over to dial service on May 3.

The commission stated that the interim rates will be collected under bond for "at least a year." At the end of this period, the commission will decide what the permanent rates should be, and if they are lower than interim rates, order refunds.

•

In another action on the same date, the commission granted the Windom Rural Telephone Co. authority to operate the Windom exchange, and approved its request for a rate increase, which amounted to $5,900 (TELEPHONY, Mar. 14). Windom subscribers number 198.

Arizona Company Requests Authority to Raise Rates

Western States Telephone Co. of Holbrook, Ariz., has petitioned the Arizona Corporation Commission for authority to increase rates.

Commission Chairman George F. Senner Jr. announced the rate application will be the subject of a public hearing tentatively set for May 7 in Holbrook.

Western States contends present charges are insufficient to give it a fair return on its investment and asks to set new rates which would allow a return of six per cent based on the fair value of the system.

Western States purchased the old Navajo-Apache telephone system two years ago, and since has spent a large amount of money borrowed from the federal government under the Rural Electrification Administration for rehabilitating and modernizing the original system.

Find Protested Rates Low, Grant Raise in Missouri

The Missouri Public Service Commission has approved a rate increase effective Apr. 21 for the Liberal Telephone Co. (TELEPHONY, Feb. 21).

Several residents of Liberal had contended that the new rates were too high.

However, in its order the commission said that the company's new rates are "only a very small amount in excess of actual operating expenses."

It continued: "According to the record, the applicant will be fortunate if it is able to perform all of the things enumerated with the proposed rates. If the applicant does not realize the estimated 527 stations in the near future, it will be hard pressed to operate its system without a deficit."

General of Wis. Requests Specific Rate Raise

The General Telephone Co. of Wisconsin recently asked for a $2,519,117 increase in rates, putting its request to the Wisconsin Public Service Commission in writing.

General Telephone asked the commission on Jan. 16 for a rate adjustment but no amount was mentioned then (TELEPHONY, Jan. 24).

The commission adjourned the case for a minimum of 60 days to permit its own staff and any objectors to examine the request and prepare replies.

The company asked for a 6.93 per cent rate of return on a rate base of $41,276,455. Its presentation indicated that it was now receiving 5.42 per cent on a base of $35,663,699.

The company claims that by the end of 1959 it will be receiving only 4.29 per cent on its present $41,276,455 base.

Gets OK to Control Placing Of Semi-Public Telephones

The Illinois Commerce Commission recently approved a petition by the Illinois Bell Telephone Co. to allow the company to regulate its placement of coin box semi-public telephones in bad risk locations (TELEPHONY, July 13, 1957).

This petition, originally filed in 1957, resulted from the high incidence of thefts from these telephones. The company asked:

(1) Where there are unreasonable risks because of locations or where a theft or attempted theft has occurred, the company may refuse to install a semi-public telephone unless the subscriber executes an indemnity agreement against all loss or damage to the telephone equipment and installation and guarantees all toll revenue loss from theft or attempted theft.

(2) In order to insure payment, the indemnity agreement may provide for a deposit of not more than $125. The company pays 5 per cent interest on the deposit annually.

(3) In all cases not covered by indemnity agreements, the subscriber shall pay the guarantee for the number of days service was available and for any toll revenue loss from the coin box.

In all cases, the company shall have the right to specify the place where the semi-public telephone shall be installed.

Some six Bell companies now have tariffs which make semi-public subscribers responsible for all loss of money and loss or damage to equipment resulting from theft or attempted theft.

Over the past several years, there have been a substantial number of robberies from three-slot, coin-operated telephones, particularly in Chicago semi-public service. In recent years, the

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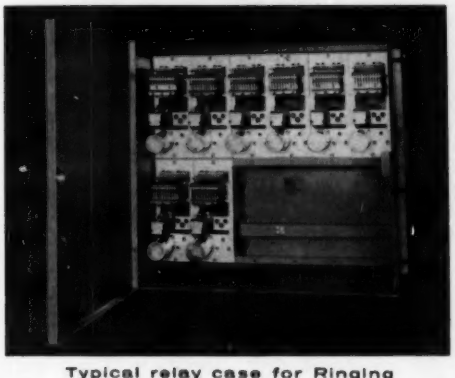

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* Pat. Pend.

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estimated loss from such robberies has exceeded $100,000 annually.

Between Jan. 1, 1954 and Mar. 31, 1957, the number of such robberies in Chicago totaled 3,594. The coin box robberies in Chicago since Jan. 1, 1954 were more than 30 per cent of the total number of such robberies in the United States.

During this period, burglars unable to open coin boxes destroyed $320,000 in telephone equipment by ripping telephones off walls.

Of Chicago thefts during one year, 868 were from telephones in gas stations, garages, and hallways of rooming houses and hotels.

According to Illinois Bell spokesmen, in no other American city is the problem as serious as that now existing in Chicago.

The only explanation offered for Chicago's vulnerability was that men arrested for breaking coin boxes pass on their knowledge to other county jail inmates.

Department stores are finding a new use for the Electronic Secretary. A Sears Roebuck & Co. store in California recently had one installed in the drapery department so that customers calling in could leave name and telephone number, and be called back by the store's drapery advisers. Here Al Miranda (left), General Telephone Co. of California commercial representative, shows B. F. Murphey, drapery department manager, how to set up the Electronic Secretary.

Commission Orders Regular Rates for Indiana Company

It was reported on Apr. 3 that the Uniondale Telephone Co. has received permission from the Indiana Public Service Commission to change over from its schedule of interim rates to what the commission considers final rates. The final, or regular, rates are applicable only to subscribers whose telephone service has been transferred from magneto to common battery.

The rates, which were set by the commission for the company at a public hearing on July 16, 1956, are as follows:

One-party business	$4.50
Two-party business	3.50
One-party residence	4.00
Two-party residence	3.50
Four-party residence	3.25
Multi-party rural	3.00

The basic increase represented in the rates it is reported, is from 50 to 75 cents.

La. Court Limits S. Bell Raise, Upholds Part of PUC Order

A Louisiana district judge on Apr. 23 rejected Southern Bell Telephone & Telegraph Co.'s appeal for a rate raise of up to $14,242,478 (TELEPHONY, Dec. 6). He ordered the Louisiana Public Service Commission to grant the $1,918,707 rate increase the commission had favored but withheld.

Dist. Judge G. Caldwell Herget, in effect, upheld the major feature of the commission order of Oct. 10 which set the amount it considered justified. But, the court overturned the commission's refusal to grant any increase.

The commission has accused Southern Bell of "grossly inadequate service" and an arbitrary slowdown in Louisiana expansion.

The commission left the door open in its order whenever, it said, the Southern Bell company would show it was giving the public adequate service.

Southern Bell appealed the commission's order which said its calculations showed the company was entitled to $1,918,707 in extra earnings, but denied the rate raise because the company had "failed to perform its obligations as a public utility."

Except for directing the commission to go ahead now and grant the $1,918,707, Judge Herget denied all other features of the Southern Bell appeal.

SBT&T Asks Raise For EAS, Long Distance Changes in Ga.

The Southern Bell Telephone & Telegraph Co. on Apr. 21 asked the Georgia Public Service Commission for authority to revise its schedule of rates on intrastate long distance calls and to increase local charges in 1960.

At the same time, the company asked authority to start a vast expansion of the toll-free area for calls to and from Atlanta.

The expansion would be initiated by creating an Atlanta metropolitan service plan, the company said. Southern Bell plans to introduce Direct Distance Dialing to Atlanta and 15 other communities in the enlarged calling area when the plan becomes effective in October, 1960.

Eventually, the plan would give Atlantians a free local calling area larger than the state of Rhode Island and nearly as large as Delaware, according to J. O. Gilmore, division commercial manager for Southern Bell.

The company said the proposed revision of long distance rates generally would reduce charges on station-to-station calls within the state and increase charges on most person-to-person calls.

The company is also seeking to reclassify some exchanges which it said have grown "out of their rate group classification" in the last eight years. The proposed changes would make local service rates the same in exchanges of comparable size.

The company said it would have to spend nearly 7 million dollars for construction to provide the new service of the metropolitan plan. It said the increased local rates would provide an annual net revenue of just under one million dollars.

Allow Raise in Illinois

The Champaign County Telephone Co., Champaign, has been authorized by the Illinois Commerce Commission to increase rates for some of its exchanges, according to an Apr. 12 report (TELEPHONY, Oct. 4).

Seeks Stock OK in Missouri

The Fordland Telephone Co. on Apr. 17 filed an application with the Missouri Public Service Commission to issue 600 shares of its common stock with a par value of $100 per share.

FCC OKs Bell Sale in N. C.

The Federal Communications Commission has recently approved the sale of the Guilford (N. C.) Telephone Co. to Southern Bell Telephone & Telegraph

GEORGE...
WHEN ARE WE
GOING TO USE THE
NEW ROBERTSON
SPLICE CASES?
...THESE OLD-FASHIONED CASES
GIVE ME A HEADACHE

Co. (TELEPHONY, Dec. 13). Southern Bell will begin operating the Guilford company, which serves about 1,500 subscribers, as of May 31.

Okla. Company Asks Raise To Cover Dial Service

The Oklahoma Corporation Commission on Apr. 29 was to have heard the application of the Holt Telephone Co., Poteau, for a rate increase to be effective when the company's Heavener exchange is cut over to automatic operation. The new system is scheduled to begin service in June or July.

Since 1955, the company has converted the Wister exchange to automatic operation, new equipment has been added, and new buildings have been constructed in Heavener and Poteau. Gross plant investment is now $453,067.

Gets Approval in Kansas To Take Over 3 Exchanges

The Craw-Kan Telephone Cooperative Association, Girard, has been authorized by the Kansas Corporation Commission to take over the territories formerly served by the Katy Telephone Co., Elsmore; Savonburg-Farmers Mutual Telephone Co.; and the Stark Mutual Telephone Co.

At the same time, according to an Apr. 16 report, the three companies were permitted to cease business.

Together the companies served 500 subscribers. Craw-Kan plans to build a single automatic exchange to serve the three communities.

Bell Issues Plans Booklet For Commercial Buildings

The benefits and importance of advance planning for telephone service are spelled out in a new Bell System booklet, "Telephone Planning for Modern Commercial Buildings."

The 22-page, illustrated brochure is designed for architects, builders, financiers, and building owners. It contains a step-by-step review of what is needed in the preliminary stage of construction to provide a modern, flexible communications setup.

The booklet points out that the more complete the facilities for telephone equipment, the easier the building is to rent or sell—and the easier it is to provide for the needs of future tenants. It explains that planning should start right at the drawing board, especially if provisions are to be made for such features as improved dial systems, speakerphones, telephone answering sets, and concealed wiring.

Among the planning points covered is the telephone terminal room, where incoming and building service cables terminate. The brochure says this room should be centrally located and on the ground level, or higher, to minimize interruption of service in case of flooding.

The booklet also includes sections on underground and aerial cable, the use of conduit, the telephone cable riser system, and underfloor distribution system.

Copies of "Telephone Planning for Modern Commercial Buildings" may be obtained by writing American Telephone & Telegraph Co., Room 510-C, 195 Broadway, New York 7, N. Y.

Mrs. Burnett President of Texas Telephone Pioneers

The Texas chapter of the Independent Telephone Pioneer Association has elected the first woman president of a Pioneer group.

MRS. WINNIE BURNETT

Mrs. Winnie B. Burnett, traveling chief operator for The Southwestern States Telephone Co. of Brownwood, is the new president of the Texas Chapter. She was elected at the annual Texas Telephone Association convention in San Antonio in March.

Mrs. Burnett succeeds C. G. MacLelland of the Universal Controls Corp., Dallas.

Other officers elected include: first vice president, Dee Cole, Quinlan Telephone Co., Greenville; secretary-treasurer, Era Lowery, of Brownwood and The Southwestern States Telephone Co.; and vice presidents—J. L. Kemper of Brownfield, General Telephone Co. of the Southwest; Morris Bateman, Conroe Telephone Co.; and W. E. Lyon, Mid-Texas Telephone Co., Killeen.

Neb. Company Seeks Raise

The Southeast Nebraska Telephone Co., Falls City, on Apr. 22 filed an application with the Nebraska Railway Commission for increased rates. Included in the application are exchanges at Falls City, Rulo, Shubert, Stella, Salem, Verdon, and Barada. The company's last increase was in 1947.

Seek Change in Reconstruction Cost New Rate Base in Ohio

Ohio Governor Michael DiSalle has proposed that the legislature change the present state laws governing the determination of utility rate bases.

Existing Ohio law says the Public Utilities Commission shall value utility property on the basis of its "reconstruction cost new" less depreciation.

He has put forth two proposals. In one, the commission would be asked to give "equal consideration" to the net investment the utility has in its property and the current value of "reconstruction cost new."

The other would permit the commission to set plant value by adding the cost of improvements to the original cost of the plant with a depreciation allowance to encourage companies to replace worn-out equipment.

Also pending in two committees of the Ohio House of Representatives is legislation which would set the actual investment as the basis for determining property values.

Sponsors of the bill, including Rep. Frances McGovern (D., Akron), said the governor's proposals differed from theirs "only in that ours would allow the commission to use its own discretion in deciding what weight it shall give to other factors bearing on value. The governor's equal weight formula points up that under our proposed bill, the commission could lean toward a reconstruction cost new base again just as easily as it could lean toward a net investment base."

Obituaries

W. F. HARRAH, 87, co-founder and honorary chairman of the board of the National-Standard Co., died on Apr. 16 at Niles, Mich., after a period of failing health.

Mr. Harrah began his career in 1890 as an office boy with Rouse Hazard & Co., a bicycle manufacturer in Peoria, Ill.

In 1905, he moved to Niles and became one of the founders of the National Wire Cloth Co., manufacturers of insect screens.

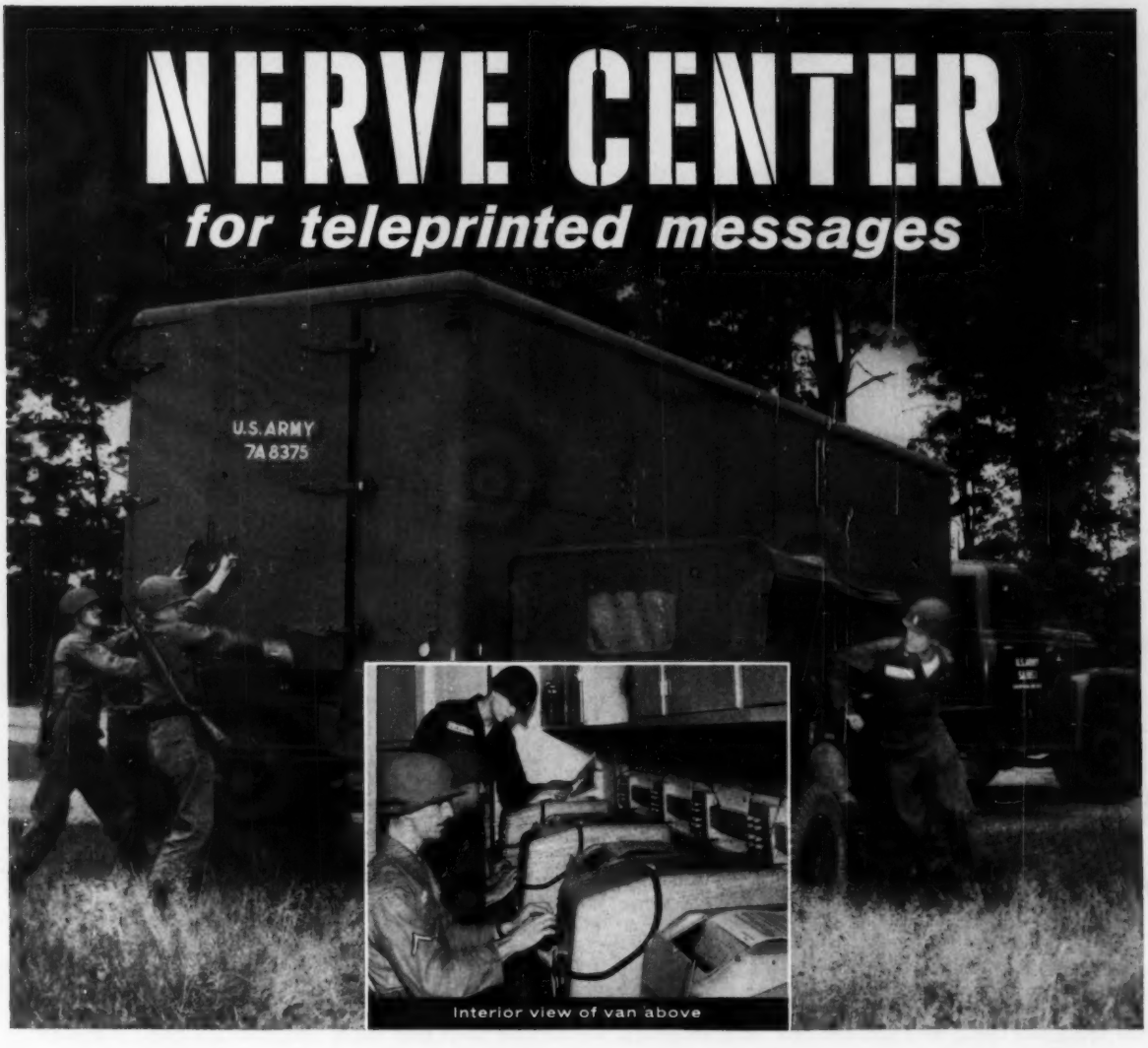
In 1907, he helped found and became treasurer of the National Cable & Manufacturing Co., of Niles. These firms were later reorganized to form National-Standard.

Mr. Harrah served as president of

(Please turn to page 41)

NERVE CENTER

for teleprinted messages



Interior view of van above

Kleinschmidt teletypewriters move up with the U. S. Army, operating without interruption under combat conditions

Constant contact, *in print,* between combat headquarters and widely-dispersed field units! Developed in cooperation with the U. S. Army Signal Corps, Kleinschmidt teletypewriters in this mobile communications center are capable of sending and receiving thousands of teleprinted messages a day. Operation is fast, accurate, dependable, simple. In recognition of proved performance, Kleinschmidt equipment for the U. S. Army is manufactured under the Reduced Inspection Quality Assurance Plan. Now Kleinschmidt experience points toward new accomplishments in electronic communications for business and industry. The new concepts, new applications are virtually unlimited.

KLEINSCHMIDT

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Pioneer in teleprinted communications systems and equipment since 1911

HER TELEPHONE COMPANY WON'T GET THIS DIME!

Just imagine! She's been all over this busy shopping center and can't find a paystation! That's why her telephone company can kiss that dime goodbye. Scenes like this are repeated every day at busy intersections, drive-in restaurants, filling stations and many other places. Are you making full use of paystations as revenue builders in your town?

Let us help you make paystations pay. Write for a free copy of our handy Survey Simplifier. It helps you find paying locations for paystations in your community. *Address: Automatic Electric Sales Corporation, Northlake, Illinois. Or call, Fillmore 5-7111.* In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.

After you've found the best locations in your town, find out about installing Automatic's Type 80 paystations. They come in 10 sparkling colors. Reinforced burglar-proof housing discourages pilferage. Lifelike transmission. Durable, moisture-proof coiled cord.

AUTOMATIC ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

National-Standard from 1913 to 1934. He then became chairman of the board. In 1952, he became honorary chairman of the board.

•

MRS. KATHERINE O. EDWARDS, Hinsdale, Ill., widow of the late Stanley R. Edwards, editor of TELEPHONY for many years, died on Apr. 25.

Mr. Edwards died on Dec. 14, 1940. He had been associated with TELEPHONY for more than 30 years and was its editor from 1912 to the time of his death.

Ray Smith, President of Telephone Engineer, Dies

RAY W. SMITH, 57, president and editor of Telephone Engineer Publishing Corp., died on Apr. 17 in Evanston (Ill.) Hospital.

Mr. Smith had been suffering from a circulatory ailment for several months. On Apr. 13 he underwent a major heart operation and appeared to be making a good recovery when complications set in on Apr. 17; another operation was undertaken from which he did not recover.

A native of McKinney, Tex., Mr. Smith had attended Texas Christian University.

Mr. Smith's career in telephony and in publishing spanned 38 years. In 1921 he became associated with his father, the late Jesse Anderson Smith, at Fort Worth, Tex., as editor of *The Transmitter*, a publication serving Independent telephone companies operating in the southwestern United States.

In 1927, his father purchased *Telephone Engineer*, and moved to Chicago. Mr. Smith continued as editor of *The Transmitter* until 1931 when it was purchased and consolidated with *Telephone Engineer*.

Mr. Smith later joined his father in Chicago as executive vice president of Telephone Engineer Publishing Corp., and editor of *Telephone Engineer*. In 1940, following the death of his father, he became president of the corporation, and editor of the publication, positions he held at the time of his death. Later, the magazine's name was changed to *Telephone Engineer & Management*.

He was a former director, president, and vice president of the Independent Telephone Pioneer Association.

He had also served on committees of the United States Independent Telephone Association and at the time of his death he was a technical advisor to the USITA Advertising Committee and a member of the USITA Banquet and Entertainment Committee.

He appeared as a speaker on the programs of many state telephone conventions.

RAY W. SMITH

Survivors include his wife, Elizabeth Ann; a daughter, Brenda, of Vero Beach, Fla., and his brother, Roy F.

Mississippi Independents Name Officers, Directors

The Mississippi Independent Telephone Association reports that at its first annual convention, held in Jackson on Feb. 2 and 3, there was a good attendance.

The following were elected to guide the association during this year: President, William D. Bailey, manager of the Decatur Telephone Co.; first vice president, Webb D. Shivers, manager of Florence Telephone Co.; second vice president, Edward R. Creekmore Jr., manager of the Calhoun City Telephone Co., Inc.; third vice president, Lon J. Darley, manager of the Home Telephone Co., of Olive Branch; and secretary-treasurer, Charles F. Fail, manager of the Bay Springs Telephone Co.

The following are directors of the association: Mr. Darley; W. W. Latham Jr., manager of the Sherwood Telephone Co., Merigold; R. L. Walker, owner of the Louise Telephone Co.; Bee Webb, of the Glen Allan Telephone Co.; Harry N. Lackey, president of the Hughes Telephone Co., of Bailey; and A. L. Young, president of the Smithville Telephone Co.

Thomas Named Acting Chief Southern Nevada Company

The board of directors of the Southern Nevada Telephone Co. has designated Gilbert O. Thomas to serve as acting chief executive officer until a new president is named to succeed the late Allye Lawson.

Mr. Thomas will continue as vice president and treasurer of the company but relinquishes the post of secretary. A board director, Charles C. King, was appointed secretary.

Mr. Lawson died of a heart attack in his office on Apr. 13 (TELEPHONY, Apr. 25).

Perigo Succeeds Raby as USITA Traffic Chairman

D. A. Perigo of the West Coast Telephone Co., Everett, Wash., has been named chairman of the United States Independent Telephone Association's Traffic Committee, succeeding Leonard M. Raby of Tarboro, N. C., the USITA has announced.

Mr. Raby has served since the beginning of the current association year, and will continue as a member of the committee. Other Traffic Committee members are: Lloyd W. Cleveland of Lincoln, Neb.; H. J. Kleinhammer of Bristol, Tenn., and A. W. Pyrke of New York, N. Y.

As chairman of the Traffic Committee, Mr. Perigo also becomes (likewise as successor to Mr. Raby) a member of the Sub-committee on Mechanized Operator Toll Ticketing of the USITA Accounting Committee. He is also automatically appointed (succeeding Mr. Raby) a member of the Sub-committee on Direct Distance Dialing of the Engineering Committee.

Yellow Pages Praised For Direct Mail "Push"

The "unpersonalized push" possible with the use of a city telephone directory's classified pages was described as basically valuable for direct mail advertising, according to the Apr. 13 issue of *Advertising Age*.

Says the advertising weekly, reporting the address of Hobart G. Miller, speaking in Chicago before the direct mailers:

"Direct mailers, at least some of them, don't really need elaborate lists of company names, addresses and executive titles and names.

"Classified telephone directories provide addresses of companies in various categories. And as for executive names, the response from mailings directed to companies is nearly equal to responses from mailings to expensively acquired lists of names and titles."

New Telephone Tax in S. C.

The South Carolina Legislature has passed and sent to Gov. E. F. Hollings a new appropriations bill which will extend the present 3 per cent sales tax to include telephone service. The measure was approved by the legislature on Apr. 16.

OPPORTUNITIES IN MOBILE SERVICE

Continued from page 21

a call to a mobile unit, the mobile service operator inserts a plug into her mobile service trunk. Circuitry in the control terminal places the transmitter on the air and signals the operator that the system is ready to receive dial pulses. The operator selectively calls the mobile unit desired by dialing a five-digit code.

This is a party-line service with fully selective ringing of the party-line subscribers. Under normal traffic conditions, up to 75 mobile units can be operated on a single channel with full-time operator supervision. This depends upon the nature of the traffic originated by the mobile units in a given community. The presence of the operator to time and ticket calls, and to complete incoming calls which encounter a busy channel, helps increase the channel capacity far beyond that normally considered reasonable for ordinary party-line service.

Billing for manual mobile telephone service is typically based upon a flat service charge, plus a certain message unit minimum, plus message unit charges by the minute on all calls beyond the minimum. Toll charges may be assessed for all calls outside the free-calling area of the exchange in which the base station is located.

Two-Way Dial Service

Fully-automatic mobile telephone service represents an extremely bright spot on the service horizon. The principal advantage is, of course, elimination of traffic expense from the system operation. Almost as important is the improvement in the quality of the service from the standpoint of both the land and the mobile subscriber. Direct dialing between land and mobile stations makes these calls just as easy to place as calls between land stations. This removes an important psychological block which might otherwise deter development of the traffic potential under manual mobile telephone service.

Since there is no operator involved to expedite traffic during busy periods, the capacity of the channel operated on a two-way dial basis is necessarily somewhat less. In order to keep equipment costs low, flatrate billing is used in the simplest systems. This removes an important restraint on the amount of holding time per call, and thus will have the result of further reducing the traffic capacity. However, the economies inherent in fully-automatic operation will generally more than compensate for the absence of message-rate billing and for the fewer subscribers assigned per channel.

Revenue Potential

Reports from telephone companies which have operated mobile systems have been mixed. Some have considered these systems profitable, while others felt the revenues were inadequate to justify the cost.

In order to show a satisfactory rate of return, a manual mobile telephone system should have at least 25 subscribers per channel. Many systems operated by Independent companies do not have as many as 25 units on each channel.

Some companies try to compensate for high fixed costs in mobile service by skimping on maintenance expense. This leads to high rates of disconnection and is seldom advisable. Some mobile telephone equipment now becoming available will come complete with standardized maintenance practices which should help produce more service per maintenance dollar in the future.

A. F. CULBERTSON

Sales and merchandising represents another area which is slighted by many companies in connection with their mobile service. Experience has shown that a little money spent on sales promotion activity can make it possible to push the revenues from this service past the break-even point and up into the profit range.

Many telephone company managers have raised the question as to whether mobile service is a proper business for the telephone industry to be engaged in at all.

This question has also been raised outside the telephone industry. Motorola has petitioned the FCC to quit licensing telephone companies to provide mobile telephone service. The petition stated that, under telephone company auspices, the service has been poor and the rates high; also, there has been relatively little engineering progress over the past 10 years. It suggested that this service will improve if licenses are restricted to those persons or corporations who can prove that they are not engaged in the telephone business. The existing telephone companies would then be required by national policy to permit indiscriminate interconnection with any facilities so licensed.

Over the objections of both Bell System and the United States Independent Telephone Association, Motorola's petition has been accepted by the FCC for incorporation into the hearings, sometime this year, on Docket 11997, which will consider the future of the 25-890 frequency spectrum.

The telephone industry thus stands at a turning point with regard to mobile communications service. The radio manufacturers and the miscellaneous common carriers will make an impressive case. The telephone industry must now decide whether it wants to participate wholeheartedly in serving the public with this type of communications, or not to engage in the business at all.

(The second and concluding part of this article will appear in next week's issue.)

United of Carolina Reports Smail Assistant to Manager

E. W. Smail, general commercial and traffic superintendent of the United Telephone Co. of the Carolinas, Inc., Southern Pines, N. C., has been appointed assistant general manager, according to an announcement by Vice President and General Manager Walter G. Robertson.

Mr. Smail will have operational control of both the North Carolina and South Carolina system.

He entered the telephone industry in 1947 at Newton, Ia., and was transferred to the Carolina company in 1950.

Asks Neb. Approval to Buy

The Nebraska Railway Commission has set a May 13 hearing on the application of the Capitol Telephone Co. of Hickman for approval of its purchase of the Eagle Independent Telephone Co. and the Alvo Telephone Co.

Which speaker is making the sound? In echoless chamber at Bell Labs, Robert Hanson measures test subject's ability to localize sounds — observes how two ears operate in partnership. This and other tests may point the way to better telephone instruments.

In listening to stereophonic music, how is it that our ears and brain construct a picture of the entire orchestra with but two samples (the sounds from two speakers) to work with?

How is it that our ears and brain are able to pinpoint *one* voice in a roomful of talkers—to listen to it alone and ignore the rest?

What makes *two* ears better than one?

Bell Telephone Laboratories scientists are searching for the answers. For in finding them, better telephone instruments and better ways of transmitting sound will surely result.

Our hearing performs feats that no electronic system can yet duplicate. How? Laboratories scientists believe the secret lies in the way our two ears function in partnership and in the way our neural network connects them with our brain. *The problem:* to discover what functions the network performs and to see whether electronic duplication might enhance understanding.

The work is under way. Electronic circuits that simulate the operation of nerve cells have already been created—and conceptual models of the neural network are being constructed.

Alexander Graham Bell's interest in deafness and hearing led to the invention of the telephone. Bell Laboratories' current explorations in binaural sound may well lead to important new advances in the transmission of speech and music.

BELL TELEPHONE LABORATORIES
World center of communications research and development

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MICROWAVE
TOWER
by
STAINLESS

Stainless microwave tower, mounting antenna array and four 6-foot parabolas.

Whether your need is for:

- Communication Systems
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Let Stainless' experienced engineering staff assist you with your tower problems.

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NORTH WALES • PENNSYLVANIA

Shown at swearing-in ceremony for William Hatton, the new Director for telecommunications policy in the office of the Assistant Secretary of Defense (supply and logistics) are (L. to R.): J. Robert Loftis, director, Administrative Services Division; Mr. Hatton; and E. Perkins McGuire, Assistant Secretary of Defense.

Hatton Appointed Director Defense Telecommunications

William Hatton, retired International Telephone & Telegraph Corp. affiliate executive, succeeded Paul Goldsborough, who retired Mar. 31, as director for telecommunications policy, in the office of the Assistant Secretary of Defense (supply and logistics).

Mr. Hatton, a veteran of 37 years in the communications industry, has served as vice president of the IT&T Telecommunications Laboratory, Nutley, N. J.; Federal Telephone & Radio Corp., Clifton, N. J., and the International Standard Electric Corp., New York City.

He also served for a period of six months last year without compensation as assistant director of the communications division of the Commerce Department's Business & Defense Services Administration.

Traffic Statistics Book Available From Travelers

More than 2.8 million Americans were drafted into the "Luckless Legion" of automobile casualties in 1958.

In its annual highway safety book entitled, "The Luckless Legion," The Travelers Insurance Companies point out: "This is an army of suffering humanity which grows more rapidly each year. . . . Since the automobile first appeared on the American scene, the ranks of the crippled and the dead have included more than 60 million of us."

The booklet, which has been published annually since 1931 (except for the war years), points out that although deaths decreased 5 per cent in 1958, the number of injuries represents a 12 per cent increase over 1957 totals.

It is estimated that speed killed and injured nearly one million Americans during 1958, more than 40 per cent of the total.

Cars that did not have the right-of-way were involved in 25.2 per cent of the accidents; reckless driving in 10.4 per cent; cutting in, 4 per cent; and improper signaling in 3.6 per cent.

During 1958, drivers under 25 were involved in 27.1 per cent of all fatal accidents and more than 20 per cent of non-fatal crashes, the report pointed out. This record was compiled by a group which constitutes at best only 14 per cent of all licensed drivers.

Passenger cars were involved in almost 80 per cent of the fatal accidents and 87 per cent of the non-fatal accidents, although Travelers estimates that total mileage traveled by commercial vehicles is almost that of passenger cars.

Copies of the 30-page statistical booklet entitled "The Luckless Legion" are available from The Travelers Insurance Companies, Hartford, Conn. They are distributed free.

Power to Curtiss Board

Donald G. Power, chairman of the board and chief executive officer of the General Telephone & Electronics Corp., has been elected to the board of directors of Curtiss-Wright Corp., it was announced on Apr. 21 by Roy T. Hurley, Curtiss-Wright chairman and president.

Exciting things are happening

...where Independent Telephone Companies are growing!

Probing the lavish reserves of natural wealth, for example. An underwater hoard of oil. An ore deposit. A new source for sulphur or salt. To appease our industrial appetite, they must be developed. And each new discovery means manpower on the move. Into new jobs . . . new homes. Into the economic "frontiers" served by independently owned and managed telephone companies. From a dial exchange with only a few hundred customers to companies serving hundreds of thousands . . . Independents together make up a 3 billion dollar industry. Today, they operate 10 million telephones, will add another half-million this year . . . to help you reach all America.

INDEPENDENT

Write for free booklet, "An American Story"—illustrated facts about America's Independent telephone industry. Address Dept. 933,
U. S. INDEPENDENT TELEPHONE ASSOCIATION, Pennsylvania Building, Washington, D. C.

This National USITA advertisement to appear in TIME May 4, U.S. News & World Report June 22.

KLEIN

preferred by linemen
. . . electricians

The name Klein on leather goods is known and preferred by linemen and electricians everywhere. Klein tool belts, safety straps, pouches and pockets represent the highest in quality, the safest in design and construction.

In safety straps, Klein-Kord was the first specially woven fabric strap designed to permit the use of a tongue-type buckle without risk of slitting or ripping, even under severe strain.

Now Nylon Klein-Kord safety straps are the newest Klein development offering maximum safety with maximum flexibility. These are the only nylon straps designed to meet the tests given in Edison Electric Institute Report AP-2.

Free Tool Guide
A copy of the new Klein Pocket Tool Guide will be sent on request.

Foreign Distributor:
International Standard Electric Corp., N. Y.

Mathias KLEIN & Sons

The Holmdel, N. J. site of Bell Telephone Laboratories, where it is planned to construct the new 20-million-dollar building.

Bell Labs to Build New Center at Holmdel, N. J.

A 20-million-dollar modern laboratory will be built by Bell Telephone Laboratories at Holmdel, N. J., according to an announcement by Frederick R. Kappel, president of American Telephone & Telegraph Co. on Apr. 15.

This lab is being constructed to meet the need for research and development to advance communications.

Mr. Kappel told the shareowners of the AT&T company at their annual meeting, "that this new building will play its important part in helping the business to keep pace with the future."

Bell Laboratories is the research and development organization for the Bell Telephone System.

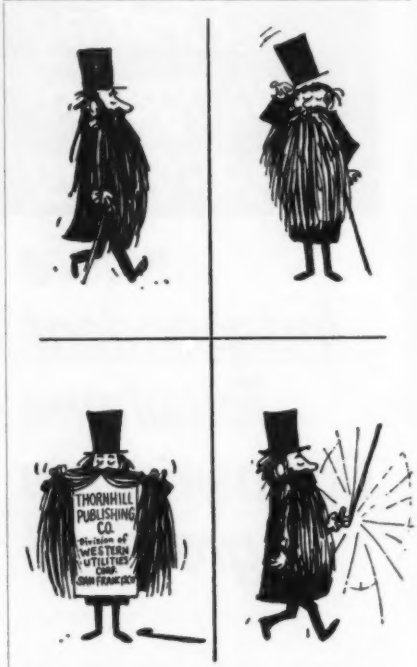
The construction of the new building will be on a 430-acre site owned by Bell Laboratories at Holmdel since 1929. Buildings presently on the property provide working space for about 150 scientists, engineers, and staff studying high frequency radio and electronics.

The board of directors of Bell Laboratories has approved the first phase of a program for the Holmdel construction, adopting a design by architect Eero Saarinen.

The design of the laboratory at Holmdel was created to meet the needs of the people who will be employed there and the kind of work they will do. The interior is functional in nature.

In arriving at his design, Mr. Saarinen had the advice and counsel of Bell Laboratories technical people. The design features over-all economy in first cost and maintenance, due to compactness with effective utilization of interior space for offices and laboratories.

It provides complete flexibility for interchangeable use of space for either laboratory or office purposes. Laboratory services can be rearranged easily without disruption of other laboratories. Freedom from disturbances is provided for employes in work locations, with ease of movement around and between working areas. General services such as restaurant, library, etc., are centralized so as to minimize employe travel time.



A complete telephone directory publishing service

300 MONTGOMERY ST., SAN FRANCISCO, CALIF.
OFFICES: KILGORE, TEXAS • EVERETT, WASHINGTON
BEAVERTON, OREGON

Working drawings for the initial construction will require about six months more for completion, with final bids from construction firms requiring about six additional weeks. Occupancy of the first portion of the building is expected in late 1961.

IN THE NATION'S CAPITAL

Continued from page 19

Congress attempts a very debatable solution because it depends on somebody else — the military — to make it work. The majority favors a system in which only VHF—the kind of TV we now see—would prevail. One member thinks UHF still has possibilities and would mix it up with VHF. Still another member favors pushing the whole industry "upstairs" on the theory that they (licensees, manufacturers, etc.) have to be chased up, in a body, because they would never go willingly.

The majority thinks that if the military would let go of some of the space it has been holding in reserve, the VHF range could be expanded from the 12 channels to as many as 50. This would help a lot. But, there would still be a definite ceiling on the number of TV stations that could operate at the same time. Right now there are 435 VHF stations using the present 12 channels. It is estimated that the nation will eventually need 2,000.

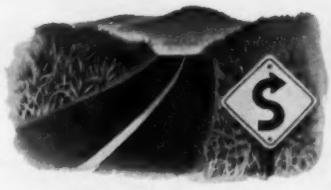
Some American cities are already up against the ceiling. Cities such as Providence, R. I., and Louisville, Ky., now have only two stations, which means they are being shortchanged on national network service. The real trouble with this FCC majority compromise is that it would be the military that would have to do all the compromising. And, the military is still to be heard from.

If the military says "No" for security reasons, and if the administration backs up the military, the FCC will have to go back and sharpen its pencil again and work out something else. Two years ago the FCC tried another sort of compromise which was called "de-intermixture," separating areas into UHF or VHF broadcasting. This has progressed so slowly that it is being called a failure in many quarters.

FCC Commissioner Robert E. Lee is the forthright member who would put the whole industry on an all-UHF basis. And, when the Senate Interstate Commerce Committee holds its hearings on TV allocations, Lee will offer his views. His main argument is that UHF would offer 70 channels right away without asking the military to give up anything. Steps could be taken to ease the transitional period. And, the manu-

Whatever your brush problem

Line?



Roadside?

Right-of-way?

WEEDONE can solve it!

With the right background—Chemical control of weeds and brush has developed along established lines of procedures and practices. Amchem initially pioneered the major advances in the field, has originated many of today's accepted procedures and products for efficient, economical weed and brush control. Your problems are in *experienced* hands when you hand them to Amchem!

With the right approach—Amchem's corps of weed and brush specialists are basically application specialists. Combining comprehensive theoretical and practical experience they are able to offer all industry a realistic approach to *any* weed or brush problem. These specialists have developed a variety of efficient weed and brush eradication programs over thousands of miles of line, roadside and right-of-way areas once choked and inoperable due to infestation.

With the right product—Amchem's tremendously diversified product line is your assurance that the right weed and brush killer is available and will be utilized for your specific problem. Weedone Brush Killers, for example, have been used in the field for years and proven eminently successful in eliminating weeds and brush wherever they are a problem. Why not bring your problems to Amchem?

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AMCHEM PRODUCTS, INC.
AMBLER, PA.

Please send me copies of your "Brush Control" brochure and full information on the uses of Weedone Brush Killers.

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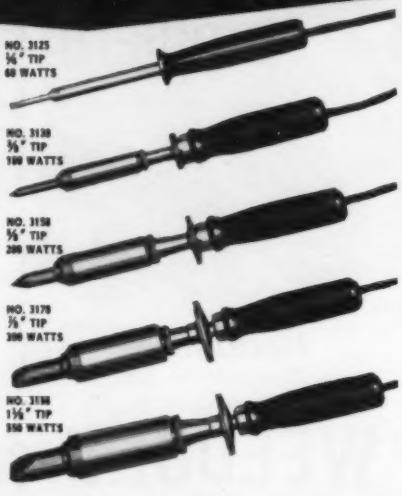

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Maximum weather resistance with tough PVC conductor jacket.

THE PLASTIC WIRE & CABLE CORPORATION
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facturers, with a new market breaking for their wares as old sets became obsolescent before their time, would hardly complain. But the majority still wants to stick with VHF all around.

Anaconda Wire & Cable Buys Sequoia Company

Anaconda Wire & Cable Co. has entered into an agreement to purchase 100 per cent of the stock of Sequoia Wire & Cable Co., of Redwood City, Cal., from Mandrel Industries, Inc. Anaconda will operate the company as a wholly-owned subsidiary for the manufacture of small wires for use in aircraft, missiles and electronic controls.

Mandrel Industries will continue as a manufacturer of electronic instruments and custom assemblies at its Burbank, Cal. plant.

The purchase of Sequoia enables Anaconda Wire & Cable Co. to add missile and electronic control insulated wires and cables to its complete line of other wire and cable products and accessories.

Sequoia operates eight manufacturing plants—at Orange, Cal.; Great Falls, Mont.; Sycamore, Ill.; Marion and Anderson, Ind.; Muskegon, Mich.; Watkinsville, Ga.; and Hastings-on-Hudson, N. Y. Its general headquarters are at Hastings-on-Hudson, sales offices are located at 25 Broadway, New York City, and there are district sales offices in 32 cities in the United States.

Sequoia employs approximately 150 persons at its Redwood City plant and offices and is a supplier of special wires and cables for the growing missile and electronic controls industries.

Final arrangements for the stock purchase are now under way and the closing date will be announced shortly.

Anaconda Wire & Cable Co. is a 70.69 per cent owned fabricating subsidiary of The Anaconda Co.

W. J. Stolze of Stromberg Awarded Sloan Fellowship

William J. Stolze, manager of the technical staff of the Electronics Division of Stromberg-Carlson, has been awarded an Alfred P. Sloan Fellowship in executive development, according to an announcement by E. P. Brooks, dean of the School of Industrial Management at Massachusetts Institute of Technology. Stromberg-Carlson is a division of General Dynamics Corp.

Mr. Stolze is one of 45 outstanding young men throughout the country nominated by their companies and selected by M.I.T. for 12 months of study in depth of the fundamentals which underlie sound management action.

(Please turn to page 51)

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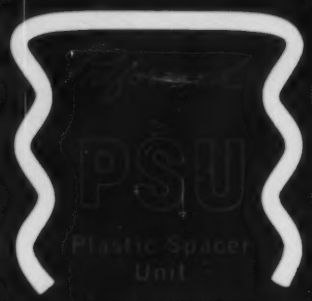

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SEE OTHER SIDE

Sloan Fellowships for participation in the program are considered among the highest honors which can come to young men entering on major executive responsibilities. Douglas P. Anderson, staff assistant to the vice president and general manager of Stromberg-Carlson's Electronics Division, was selected for a Sloan Fellowship last year and is currently studying at M.I.T. He will complete his course in June.

Beare Named President of Sylvania International

Donald C. Power, chairman and chief executive officer of the General Telephone & Electronics Corp., has announced that Gene K. Beare has been named president of the Sylvania International division of Sylvania Electric Products, Inc.

G. K. BEARE

Mr. Beare assumes this new responsibility in addition to his present position of president of Automatic Electric International, Inc., and will have overall responsibility for all of the international manufacturing and sales operations of both Automatic and Sylvania, subsidiaries of General Telephone & Electronics.

Sylvania has subsidiary manufacturing companies in Argentina, Brazil, Canada, and Mexico, and major sales subsidiaries in Cuba, Mexico and Switzerland. It has associated manufacturing companies in Great Britain, Italy, Japan, and Mexico. Sylvania products are sold in more than 60 countries.

Automatic Electric International has subsidiary manufacturing plants in Canada, Belgium, and Italy; major sales subsidiaries in Mexico, Colombia, Venezuela, and Brazil; and sales offices or sales agents in some 50 other countries.

Mr. Beare began his telephone career with Southwestern Bell Telephone in St.

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Louis, and joined Automatic Electric Co. in 1939 as assistant to the president.

He was named commercial manager of Automatic Electric's affiliated companies in 1946, and general commercial manager the following year.

In 1948 he became production manager, and was elected vice president in charge of production in 1954.

In January, 1958, he became president of Automatic Electric International.

He was graduated from Washington University, St. Louis, with the degree of bachelor of science in mechanical engineering, and later received a master's degree in business administration from the Harvard Graduate School of Business Administration.

During World War II he served in the Navy and held the rank of lieutenant.

Dominguez Named Technical Director of Chile Company

Jose D. Dominguez, assistant vice president of International Telephone & Telegraph Corp. and executive engineer of ITT's Telecommunications Operating Group, has been appointed technical director of the Compania de Telephonos de Chile, Santiago, Chile.

According to John T. Naylor, ITT vice president, Mr. Dominguez will serve as technical advisor to Richard H. Rawlings, executive vice president of Chiltelco in connection with the company's 75-million-dollar expansion program, which is designed to add some 84,000 new telephones by the end of 1965.

Founded in 1930, the company now has approximately 157,000 telephones in operation.

Mr. Dominguez received a B.S. degree in electrical engineering from Massachusetts Institute of Technology.

In 1927 he joined ITT and was assigned to the Cuban Telephone Co.

He transferred to the Puerto Rico Telephone Co. in 1939 as chief engineer.

After a series of promotions, he became president of Ricotelco in 1956, and he is still a director of that company.

During his association with the ITT system, Mr. Dominguez has been vice president and/or director of several companies, including Behn Brothers Inc., Tanca Realty Co., Standard Electric Corp. of Puerto Rico, Federal Caribe, Inc., and the Radio Corp. of Puerto Rico.

He is an active member of many professional, business and civic organizations in Cuba, Puerto Rico and the United States.

ABC OF THE TELEPHONE

Continued from page 23

Mr. Seitz is one of the telephone industry's best-known authorities on cable installation and maintenance.

Thus, his book is highly recommended for every plant man, beginner or experienced, who is involved in any way with the operation of telephone cable plant. Copies of Mr. Seitz's book can be ordered from TELEPHONY.

While on the subject of splicing aerial cable, an interesting new product used in splicing plastic cable should be mentioned. This product is a plastic splice sleeve filled with a corrosion-resistant silicone grease.

A bit of background information is appropriate before explaining the use of these sleeves. In splicing lead-sheathed cable, the completed splice is wrapped and sealed inside a moisture-proof lead sleeve. The cable itself is moisture-proof.

Thus the pigtail splice applied to each cable pair can be protected with a simple cotton or plastic sleeve. The

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splice does not require additional moisture protection.

Plastic Cable

A slightly different situation must be considered in splicing plastic cable. The individual pairs of a plastic cable are well insulated. As a result, the exclusion of moisture from inside the cable is not as vital as it is with paper-insulated lead cable. However, special precautions are required to provide proper insulation when each wire in the cable is spliced.

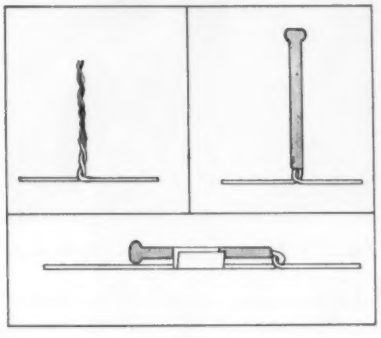

Fig. 4

Fig. 4 illustrates the method of splicing a plastic cable wire, using a filled splice sleeve as follows:

(1) Strip the wire and make the usual pigtail splice commonly used in cable splicing. Note how the wire insulation is included in two twists of the splice.

(2) Slip the filled sleeve over the splice.

(3) Bend the sleeve parallel to the wire, and apply tape to hold the sleeve in place.

The manufacturer states that the silicone grease in the sleeve will maintain its viscosity over broad temperature ranges. Thus, it will not flow from the sleeves and it will not harden on the splice or dry out. The advantages claimed for the sleeves are their speed in use and their permanence in sealing the splice to prevent corrosion or moisture attack in the splice area.

Wrapping each splice with vinyl or similar plastic tape is another good way of insulating each wire at a plastic cable splice.

Maintenance of Aerial Cable

Maintenance of aerial cable is also discussed at some length in Mr. Seitz's book on cable splicing.

Additional interesting information on electronic testing of aerial cable and drop wire plant can be found in Chapter 39, Vol. II of the "ABC of the Telephone."

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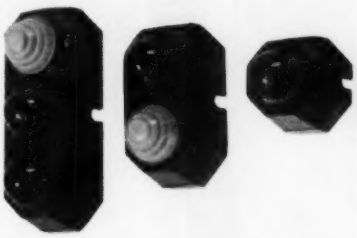

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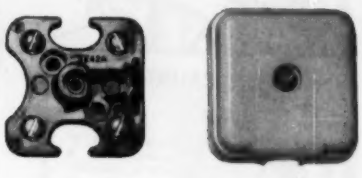

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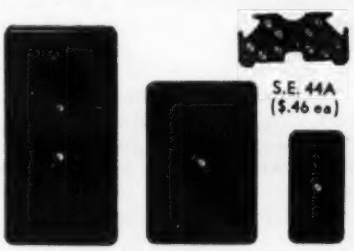

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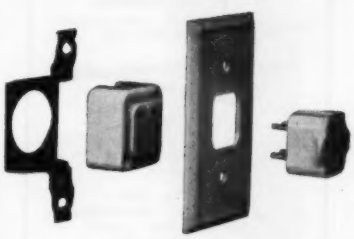

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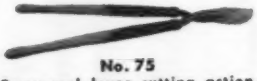

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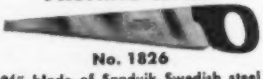

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KEEPING UP WITH THE LATEST DEVELOPMENTS

Continued from page 26

rings from the messenger strand. Made of hardened tool steel, the double blade fits all standard cable rings.

The hooked-blade end is applied under the loop at the top of the cable rings; then an upward motion of the handle

Fig. 126. Cable de-ringer tool.

slips the ends of the cable rings apart, with one easy movement. A hole at the upper end is for attaching to a lineman's belt.

■

Insulated Protector Block Tool (Fig. 127). This tool also by General Machine Products is designed for use in removing and replacing blocks in protectors.

The main body of the tool is constructed of Micarta, having special-shaped jaws at one end and a bronze

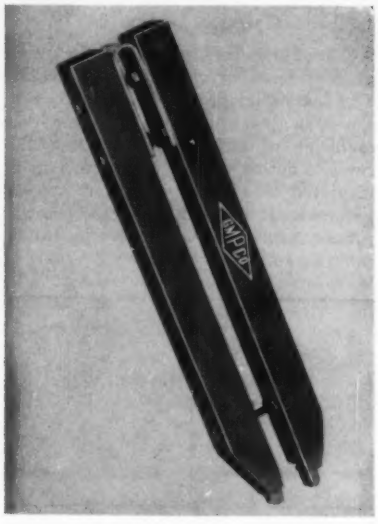

Fig. 127. Insulated protector block tool.

spring connector at the other end. Overall dimensions: 7 inches x 1½ inches; weight: ¼ pound.

■

Split Shield for Cable (Fig. 128). Butler Manufacturing Co. has introduced "Cablegard," a split-pipe shield for cable which is used wherever steel protection is needed. The product consists of two halves which are flanged to clamp around a cable. It is presently available in curved or straight lengths of five usable feet.

A clamping tool forms a 90° clip after the two halves have been placed around the cable. The clamping tool positions the two halves correctly and forces the clip around the flanged portion to form a tight, permanent closure.

Used above or below ground, Cablegard, the manufacturer states, will eliminate cable cuts and resplicing

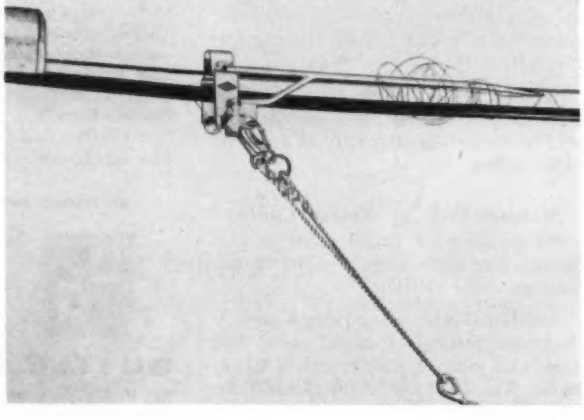

Fig. 125. "B" lashing wire remover.

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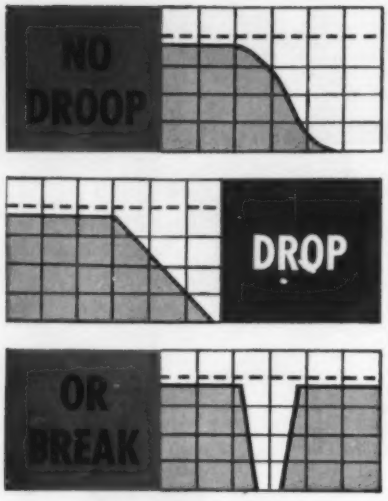

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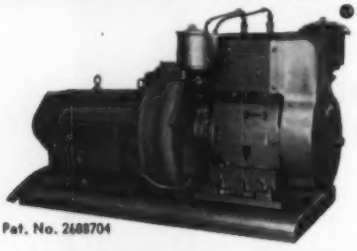

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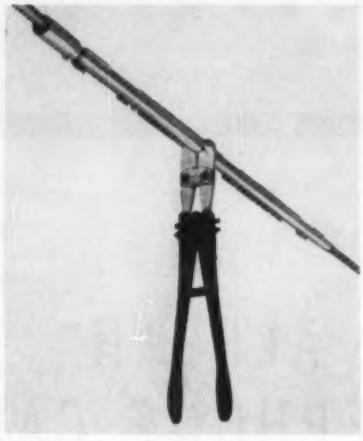

Fig. 128. Split shield for cable.

where a solid pipe or conduit type of cover has been used.

•

Dropository. (Fig. 129). "Dropository" provides a means of depositing envelopes or other objects in a repository (receiving container) without opening same. The Mosler Dropository may be located in an area remote from the repository.

This device, often referred to as a night depository, has long been used by banks, insurance companies and various other business establishments so that customers can pay bills, make deposits, etc., after hours when offices are closed. In recent years, telephone companies have come to realize the numerous advantages to be gained by the provision of this "after-hours" service. Now, present-day telephone business offices are not considered complete unless they are equipped with modern Dropository.

Fig. 129. Dropository.

The deposit receiving mouth of one type Dropository is restricted in size to ⅝ x 4¼ inches. The throat, however, will accept an object much larger and, therefore, it cannot be jammed. Any attempt at jamming the hopper throat would be clearly visible.

Fish-proof protection is made possible by the action of steel baffle fingers, interlocking with baffle teeth. The baffle finger assembly is cadmium plated. The hopper pivots on ¼ inch diameter stainless steel bearings. The facing frames are normally alumilited aluminum or bronze satin finish. The housings of all units are 16-gauge paint grip steel.

Chutes of the required lengths are used in extending the Dropository's throat through thick walls or in other situations where the repository is remotely located. Removable "bolted flanges" are attached to each end of the chute.

The Dropository payment counter is a neat small unit available for installation in retail stores, banks, etc., to receive payments of telephone bills. This unit may be permanently attached to the floor with lag screws.

•

In the preparation of these articles we have endeavored to assemble the most useful information on as many products as possible. In this connection, there is no doubt that we have missed many worthwhile items. Furthermore, our industry never stands still, and undoubtedly many new items have been developed since we began preparing these articles.

It is our hope, however, that we have been able to furnish information that will prove of value to you in your daily work. If you have a need for additional information on any of these items, please let us hear from you. We will do our best to provide any detailed data you may require.

All Are Partly Mad

"He appears mad indeed but to a few, because the majority is infected with the same disease."—HORACE.

New Standards Publication Shows Industry Profits

Leaders of the telephone industry are among 50 industry, government, and science executives who report the economic significance of standard methods and specifications in a publication entitled "Standardization—What's In It For Me?" This is the printed proceedings of the Ninth National Conference on Standards held in New York, Nov. 18-20, 1958, just published by the

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The talks of the 50 executives tell how they have put standards to work for profits in their operations—in telephone, nuclear power, textiles, electronics, the chemical and petroleum industries, machine tools, photography, and in the steel, electrical and plastics industries.

These men stress a common theme—the need for more standards to cut costs in purchasing, design and engineering.

"Standardization—What's In It For Me?" totals 128 pages, with illustrations. It is available from the American Standards Association, Rept. PR 63, 70 East 45th St., New York 17, New York, at $4.50 per copy.

Griffin, Norton New Vice Presidents, General T&E

George W. Griffin Jr. and George P. Norton have been elected vice presidents of General Telephone & Electronics Corp., according to an announcement by Donald C. Power, chairman and chief executive officer of General. The election took place in Santa Monica, Cal., at the board of directors' meeting, which followed the corporation's annual shareowners' meeting on Apr. 15.

Mr. Griffin will guide the public relations function of General Telephone & Electronics. Previously, Mr. Griffin was a vice president of Sylvania Electric Products in charge of public relations. Sylvania is now a subsidiary of General Telephone & Electronics.

Mr. Norton will guide financial and stockholder relations and the various advertising programs. He has been public relations director for the corporation and was formerly personnel director of General's subsidiary company in the Southwest.

G. W. GRIFFIN JR.

G. P. NORTON

Pride of Country

"A people that studies its own past, and rejoices in the nation's proud memories, is likely to be a patriotic people, the bulwark of law, and courageous champion of right in the hour of need."
—JOSEPH ANDERSON.

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Reliable Electric Reports Two Appointments in Sales

The Reliable Electric Co., of Franklin Park, Ill., has announced the appointment of Arthur C. Kelley as district manager for Reliable's eastern district. Mr. Kelley's territory includes New York, New Jersey, Maryland, Delaware, the eastern half of Pennsylvania and the District of Columbia.

A. C. KELLEY

Prior to assuming his new position, Mr. Kelley was assistant to the manager of telephone sales.

Reliable also announces that Victor G. Ritter has been appointed to assume Mr. Kelley's duties in the Chicago office.

V. G. RITTER

Mr. Ritter started with Reliable in July, 1957 as salesman in the southern Ohio, Kentucky and West Virginia area.

Since June 1958, he has been assigned to the staff at the plant as a design and field consulting engineer.

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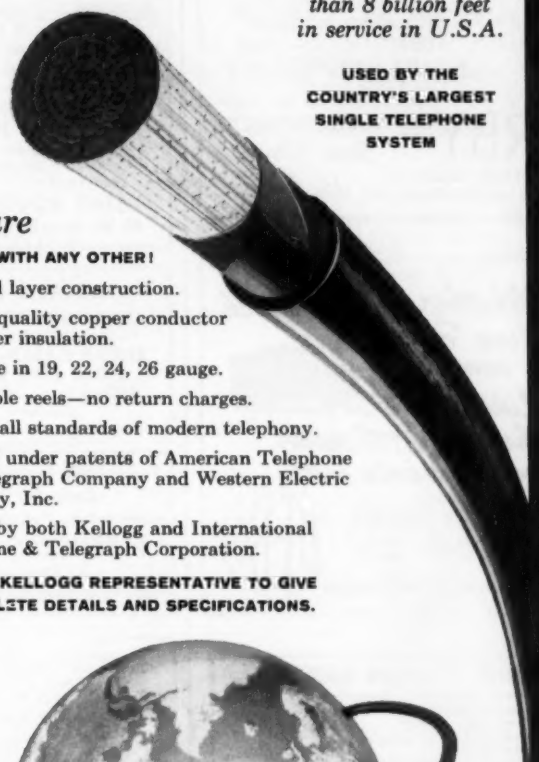
USED BY THE COUNTRY'S LARGEST SINGLE TELEPHONE SYSTEM



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For complete list of offices, see pages 6-7.

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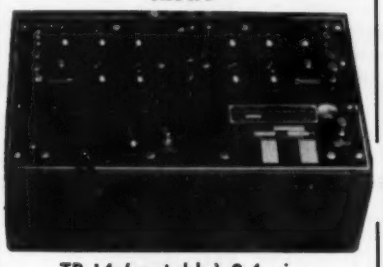

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single circuit

TA 3/FT Federal, new ..... $35.

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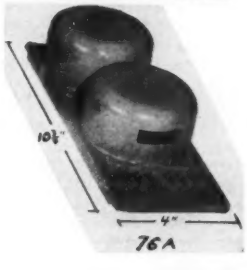

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C-111

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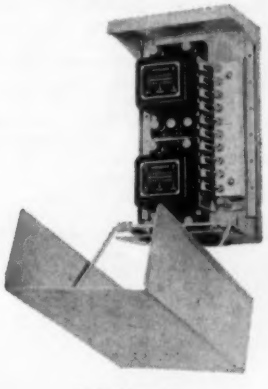

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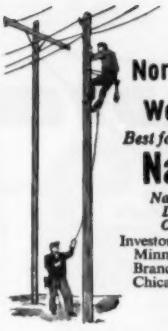

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Index to ADVERTISERS

	Page
Acme Visible Records, Inc.	—
Airtronics International Corp.	—
Alphaduct Wire & Cable Co., The	—
Altec Lansing Corp.	—
Aluminum Company of America	—
Amchem Products, Inc.	47
American Chain & Cable Co., Inc. Page Steel & Wire Div.	—
American Creosoting Corporation	—
American Electrical Heater Co.	48
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	—
Anaconda Wire & Cable Co.	—
Ansonia Wire & Cable Co., The	—
Arps Corporation	—
Atlantic Creosoting Co., The	63
Auburn Machine Works, Inc.	—
Automatic Electric Sales Corp.	12-13, 32-33, 40
Avnet Electronics Corp.	37
Baker Wood Division	63
Barber Advertising Specialties, Walt	—
Barber-Greene	—
Bartlett Tree Experts	—
Bell Telephone Laboratories, Inc.	43
Benner-Nawman, Inc.	—
Berry & Co., L. M.	—
Bethlehem Steel Co.	—
Biddle Co., James G.	—
Bishop Manufacturing Corp.	—
Blaw-Knox Company	—
British Insulated Callenders' Cables, Ltd.	14
Buchart Associates	—
Buckeye Telephone & Supply Co.	62
Burgess-Manning Company	—
Burroughs Corp.	—
Butler Manufacturing Co.	—
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	60
Cable Construction Co.	60
Cable Spinning Equipment Co.	—
Calculagraph Company	2
Chance Co., A. B.	—
Charles Machine Works, Inc.	—
Chase Brass & Copper Co.	—
Cleveland Inst. of Radio Electronics	—
Clifton Appraisal Company	—
Collins Radio Co.	29
Colorado Fuel & Iron Co., The	—
Commercial Cord Company, Inc.	—
Communication Equipment & Engineering Co.	—
Cook Electric Company	—
Copperweld Steel Co.	—
Crane, Inc., Carl C.	60
Cushman Motor Works, Inc.	—
Davis Construction Co.	60
Davis, Inc., Archie	60
Diamond Expansion Bolt Co.	—
Donnelley & Sons, R. R.	—
Dow Chemical Company, The	—
Dressler & Co.	62
Duo-Safety Ladder Corp.	—
Electric Specialty Co.	—
Everstick Anchor Co.	—
Exide Industrial Division— The Electric Storage Battery Co.	—
Fitchburg Engineering Corporation	—
Foley Construction Co., Robert E.	60
Gagne Enterprises, Inc.	—
General Cable Corporation	—
General Insulated Wire Works	—
General Machine Products Co., Inc.	—
General Telephone Directory Co.	16
Gladwin Plastics, Inc.	51
Goodrich Chemical Co., B. F., The	—
Gould-National Batteries, Inc.	—
Graybar Electric Co.	15
Haley & Co., R. G.	—
Hallamore Electronics Co.	—
Harris McBurney Company	—
Henkels & McCoy	60
Highway Trailer Company	—
Hirsch Organization Inc., Gustav	57
Holan Corp.	—
Hubbard & Company	—
Indiana Steel & Wire Co.	—
Irby Construction Co.	60
Irwin Auger Bit Co.	—
Jefferson Air Depot	—
Jet Line Gun Company	—
Johns-Manville	—
Kander & Company, Allen	—
Kearney Co., Jas. J.	—
Kellogg Switchboard & Supply Co.	6-7, 59
Kennecott Wire & Cable Div.	—
Killoren Company	60
Klein & Sons, Mathias	46
Kleinschmidt	39
Koiled Kords, Inc.	—
Koppers Co., Inc. Wood Preserving Div.	—
Lake Shore Electric Corp.	—
Leich Sales Corporation	10-11
Lindsay Telephone Supply Co.	58
Line Equipment Sales	60
Lorain Products Corp., The	—
Macco Company	—
Magnolia Chemical Company, Inc.	—
Malleable Iron Fittings Co.	—
McCabe Powers Auto Body Co.	—
McGrath Engineering, Inc.	60
Midwest Communications Service Co.	60
Monsanto Chemical Co.	3
Morrison-Pelsue Co.	—
Mullen Construction Co.	60
Murphy Engineering Laboratories	52
Natco Corporation	—
National Pole & Treating Div.	63
National Standard Co.	—
National Telephone Supply Co.	Back Cover
Neubauer Manufacturing Co.	—
Neuses, Inc., P. K.	60
North Electric Company	—
Onan & Sons, D. W.	—
Orangeburg Manufacturing Co., Inc.	—
Owens-Illinois	—
Page & Hill, Inc.	—
Phelps Dodge Copper Products Corp.	—
Philco Corporation Gov't & Industrial Div.	—
Philco, Techrep Division	62
Plastic Wire & Cable Corp.	48
Porter, Inc., H. K.	—
Preformed Line Products Co.	49, 50
Radio Frequency Laboratories, Inc.	—
Ramset Fastening System	—
Rawlplug Company, The	—
Raytheon Mfg. Company	—
Recordak Corp.	—
Reichhold Chemicals, Inc.	—
Reliable Electric Company	9
Relton Corporation, The	—
Remington Rand Div.	—
Republic Creosoting Co.	—
Rex Corporation, The	55
Reynolds Metals Company	—
Rolatape, Inc.	—
Runzel Cord & Wire Co.	—
S & G Manufacturing Corp.	—
Schauer Mfg. Co.	—
Secode Corporation	—
Seymour Smith & Son	54
Sierra Electronics Corp.	—
Sloan, Cook & Lowe Co.	60
Stainless, Inc.	44
Stampings, Inc.	—
Stewart Bros.	—
Stromberg-Carlson Co.	4-5
Superior Cable Corporation	—
Suttle Equipment Corporation	53, 60
Taylor-Colquitt Co., The	—
Telectric Co.	61
T.E.I. Corp.	60
Tel-E-Lect Products, Inc.	—
Tele-Muff Co.	—
Telephone Construction, Inc.	—
Teletype Corporation	—
Tele-Wire Supply Co., Inc.	—
Telkor, Inc.	60
Templeton, Kenly & Co.	—
Thornhill Publishing Co.	46
Transandean Associates, Inc.	—
Truck Equipment Company	—
Tudor & Yager, Inc.	60
United Electric Controls Co.	—
United States Independent Telephone Association	45
U. S. Industrial Chemicals Co.	—
United States Instrument Corp.	65
United States Motors Corp.	56
United States Steel Corp. American Steel & Wire Co.	—
Creosote Division	—
Universal Controls Corp.	35
Utica Drop Forge & Steel Div.	—
Utility Body Co.	—
Utility Service Co., Inc.	—
Utility Tool & Body Co.	60
Volkswagen	—
Warren Mfg. Co., Inc., The	—
Weikel Line Company	60
Western Electric Co.	—
Whitney-Blake Co.	—
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Wiremold Co., The	—
Wyoming Valley Equipment Div.	—
York-Hoover Corporation	—

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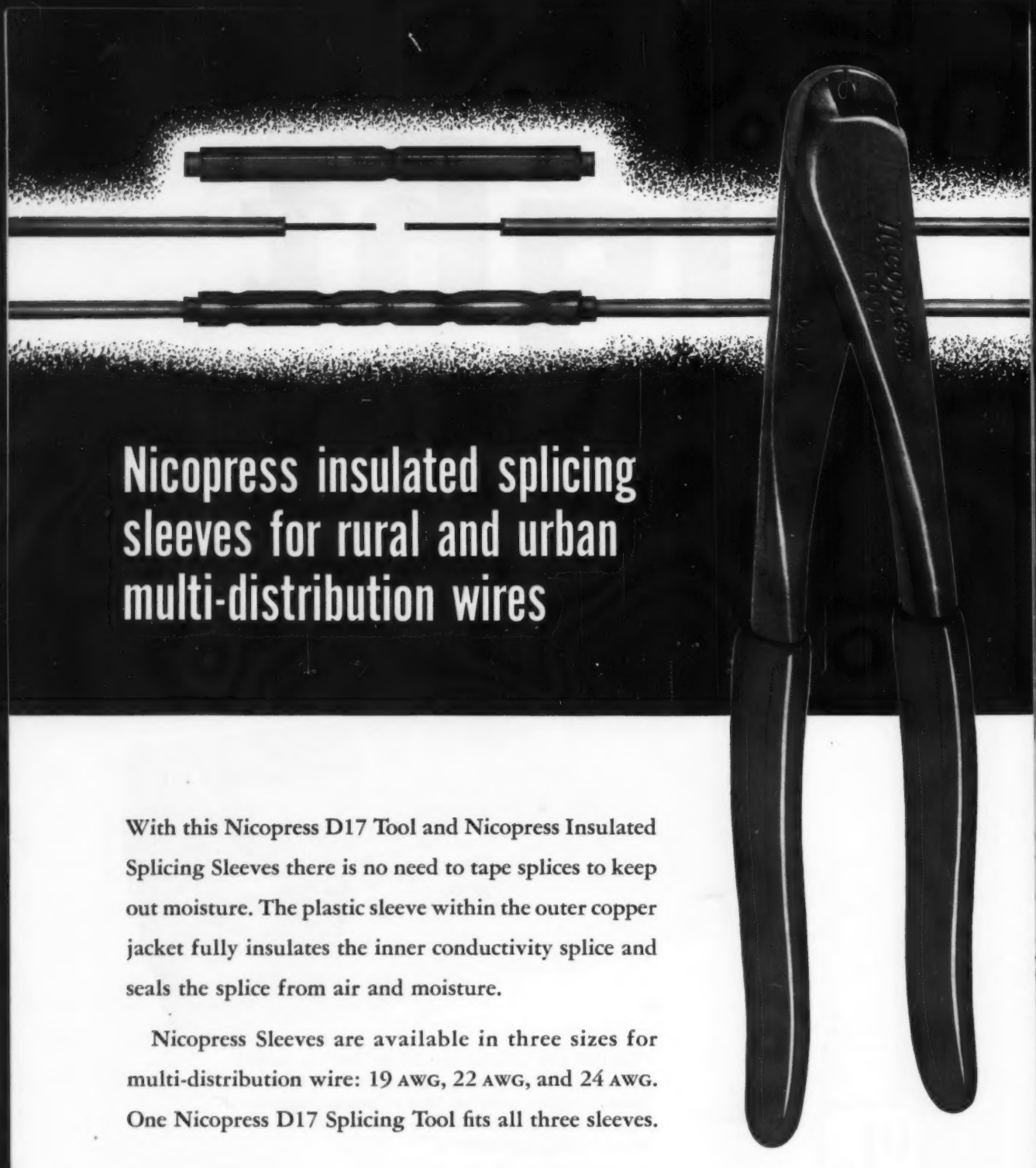

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